

THE **BIG BLUE BOOK**

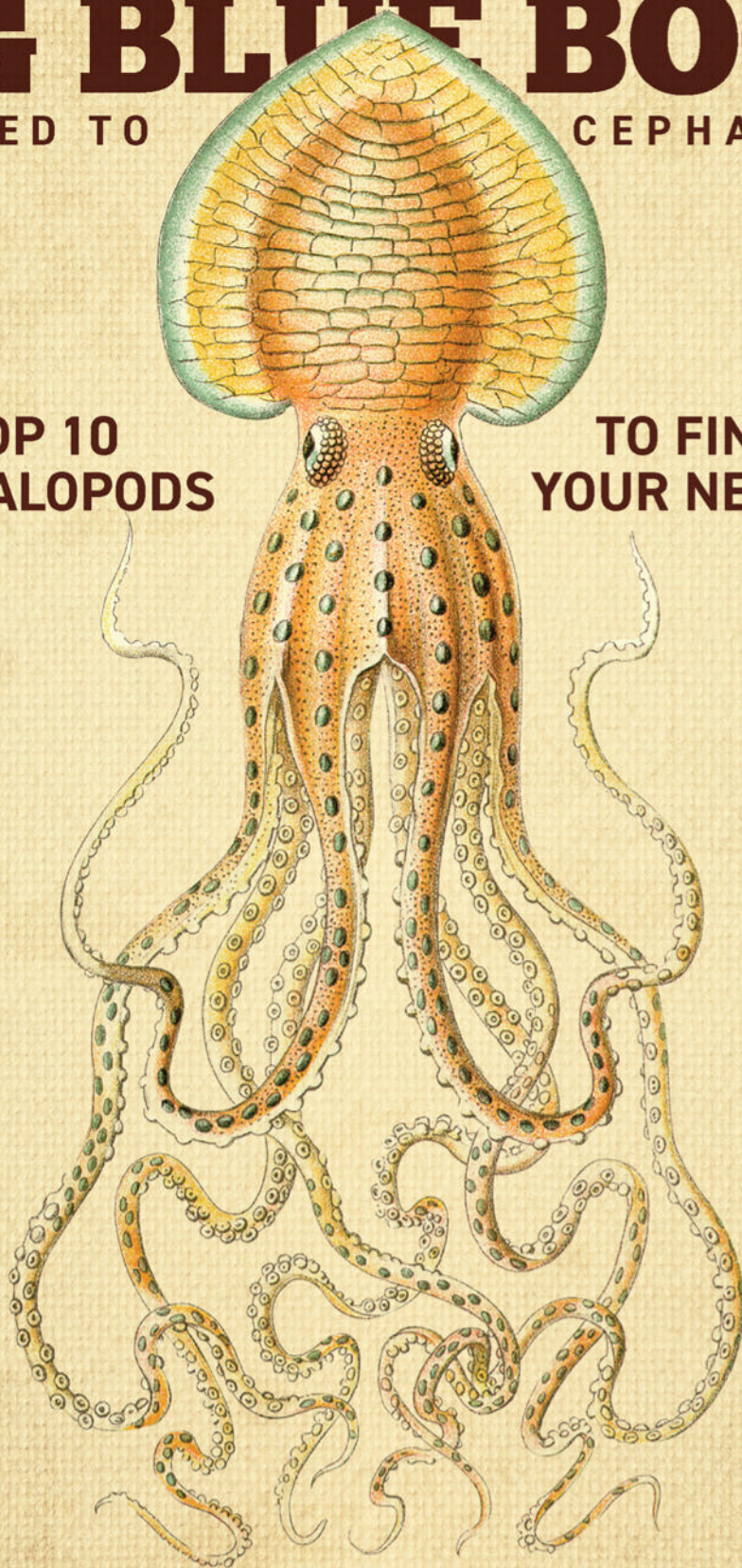
DEDICATED TO CEPHALOPODS

AsianDiver

ISSUE 2/2025 VOLUME 170

TOP 10
CEPHALOPODS

TO FIND ON
YOUR NEXT DIVE

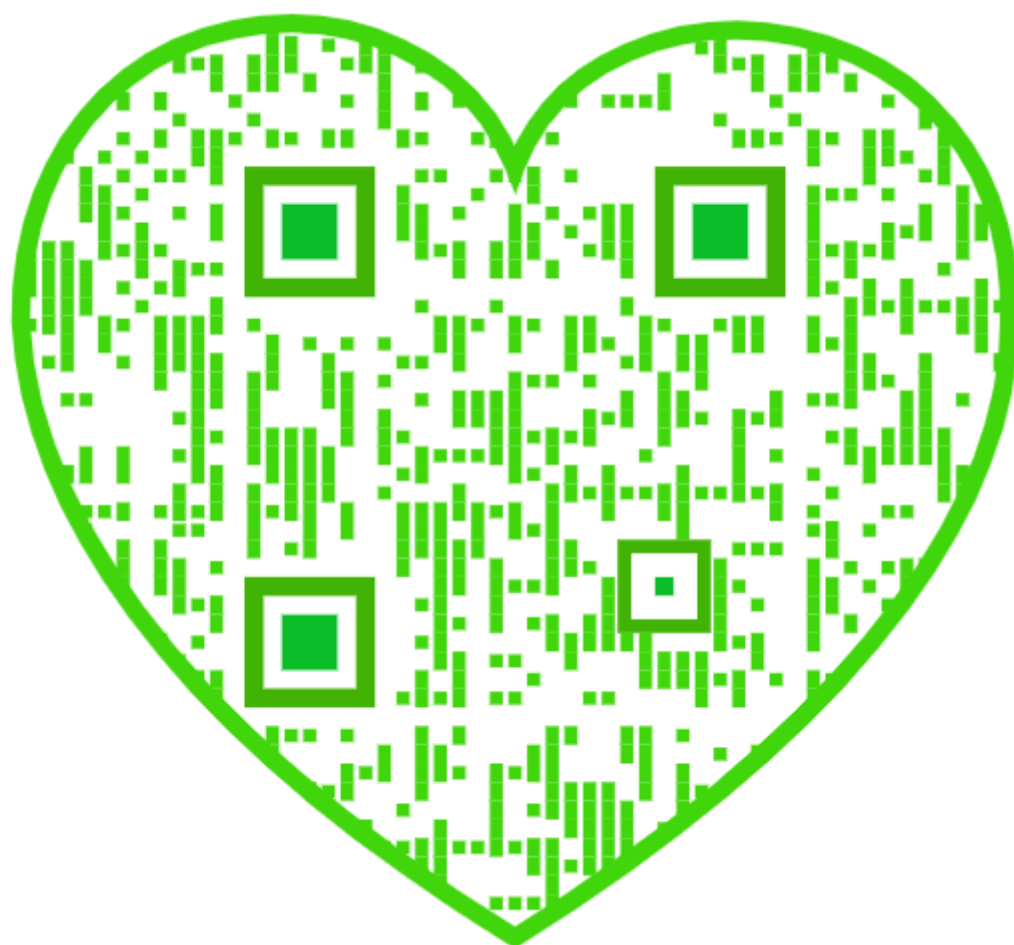


OFFICIAL MEDIA

ADEX
31
ANNIVERSARY

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Destination
(Asia Pacific)



Asia's Leading
Dive Destination



Best Dive
Destination



Best Dive
Destination



Sustainable
Dive Destination
of the Year

TPBPHL
TOURISM PROMOTIONS BOARD PHILIPPINES



DIVE
PHILIPPINES

LOVE
THE PHILIPPINES

DIVE MAP OF THE PHILIPPINES



LIST OF HYPERBARIC CHAMBER SYSTEMS IN THE PHILIPPINES (As of 26 October 2023)

- 1 Asian Hyperbaric Healthcare Inc.
Mandaluyong, Metro Manila
- 2 Boardwalk Dive Center
Dewey Avenue, Subic Freeport Zone
- 3 Advanced Hyperbaric Life Support Inc.
Quezon City, Metro Manila
- 4 NAVSOCOM, Sangley Point
Cavite City, Cavite
- 5 Hyperbaric Medicine and Wound Healing Center
Batangas City, Batangas
- 6 Mabini Community Hospital
Mabini, Batangas
- 7 Diving Park Hyperbarics Wellness Center
Puerto Galera, Oriental Mindoro
- 8 Coron Divers Dive Center
Coron, Palawan
- 9 Ospital ng Palawan
Puerto Princesa City, Palawan
- 10 Advanced Hyperbaric Healthcare Center
Bacolod, Negros Occidental
- 11 Maayo Well
Mandaue City, Cebu
- 12 Eastern Visayas Medical Center
Tacloban City, Leyte
- 13 TIEZA Office Building
Mandaue City, Cebu
- 14 Panglao Rural Health Unit
Panglao, Bohol
- 15 Southern Philippines Medical Center
Davao City, Davao del Sur





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Marine Photojournalist
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Member since 2021

Thomas Bauer
Recreational Diver
Member since 2003



Cristina Calderon
Signature Dive Veterans
Member since 2017

Paul McQuigg
Dive Professional
The WAVES Project
Member since 2015

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ADEX VOICE OF THE OCEAN

2025 LIVE JUDGING

APRIL 6, 3PM

LIVE JUDGING



KATE JONKER [UK/SOUTH AFRICAN], BERKLEY WHITE [USA], ERIN QUIGLEY [USA], WILLIAM TAN [SINGAPORE], KAY BURN LIM [AUSTRALIA], FRANCO BANFI [SWITZERLAND], TOBIAS FRIEDRICH [GERMANY], NICOLAS REMY [FRANCE/AUSTRALIA]

VIP GUEST JUDGES



DAVID DOUBILET [USA], JENNIFER HAYES [USA]

CATEGORIES

- Animal Behaviour
- Cephalopods
- Waterscapes
- Short Film
- Artwork



*As part of ADEX's commitment to marine sustainability, entrants must adhere to ethical photographic principles, including capturing animals in their natural habitats exhibiting naturally occurring behaviour

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**SCUBADIVER
ocean planet**

Organised by
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360**

Sponsored by



Photo – Main: Daniel Sty, V00 2024 entry

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David Doubilet

SEACAM Ambassador & National
Geographic Photographer

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Geographi
ITSEA BEIJING
INTERNATIONAL ISLAND TOURISM & SPORTS EXPO



Photo by Zhao Oufei [2nd China Underwater Photo Contest Winner]

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CREATED BY

underwater
360



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20 BEIJING
25 DIVE
FESTIVAL
JULY 11-13

CHINA INTERNATIONAL EXHIBITION CENTER
(CHAORYANG HALL 8B)

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DANCE**

2025

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Photo: Masayuki Agawa

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25 BIG
SIGHT

SEPTEMBER 26-28

ASIA DIVE EXPO JAPAN

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Photo Courtesy: Ko Song Mi
ADEX Ambassador for Mermaids Korea



20 **BUSAN**
25 METROPOLITAN
CITY, KOREA
OCTOBER 30–NOVEMBER 1

IN CONJUNCTION WITH



OCEAN COLLECTIVE
SUMMIT (KOREA)

ENDORSED BY



부산광역시
BUSAN METROPOLITAN CITY

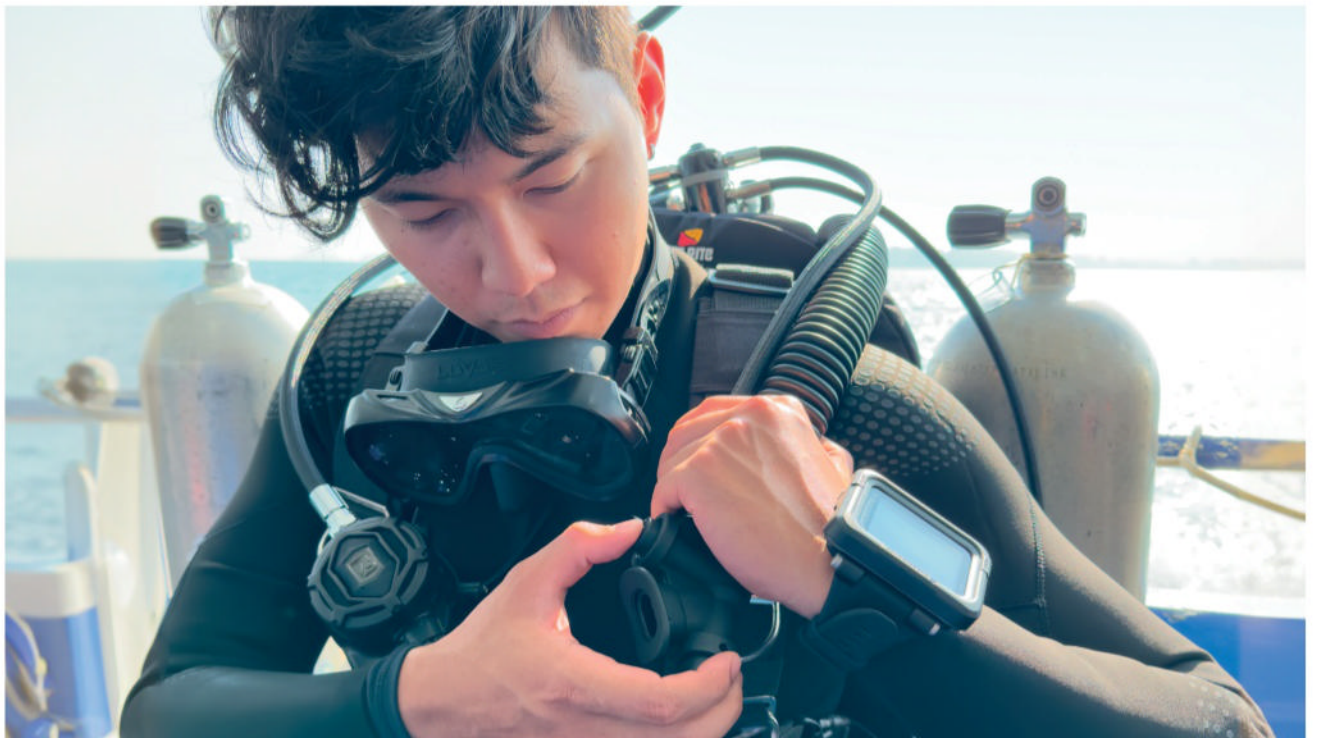
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 **SHEARWATER**

PUBLISHER'S NOTE

OCEAN VISION, MISSION & FESTIVAL

Since its establishment in 1995, the Asia Dive Expo (ADEX) has seen remarkable growth. Under the guidance of Asian Geographic Magazines, which took over in 2010, this growth has been exponential, with our show becoming the largest and longest-running in Asia. Over the past 15 years, my vision has been to transform ADEX into more than just a dive show. I wanted to create a platform that would bring together individuals connected to the ocean, fostering learning, increasing awareness, and spreading the message of marine protection and conservation.

To achieve these goals, we have encouraged educated and well-informed new divers to serve as role models, appointed ambassadors to inspire change, and invited influential figures in our industry to place a spotlight on endangered marine animals and address threats facing our oceans such as climate change and marine plastic pollution. In doing so, we have aimed to forge ahead as an industry, nurturing a vibrant community that is progressive in its thinking and actions, and willing to turn sustainability ambition into action.

Thanks to the success of our Singapore-based shows, ADEX has expanded globally to key locations, including Beijing, Manila, the Maldives, Mumbai, Sabah (Malaysia), Shanghai, Shenzhen, Sydney, and Tokyo. With Busan (South Korea) soon to join, our presence continues to grow across Asia and beyond. On October 14, 2024, ADEX proudly acquired full ownership of OZTek, bringing this renowned Australian technical diving event into the ADEX cluster. Our 2025 lineup includes events in Australia, China, Japan, and South Korea, furthering our mission to educate, engage, and entertain audiences while championing the protection of our oceans.

ADEX SUSTAINABLE OCEAN AMBASSADOR

By the Agricultural and Food
Marketing Association for Asia and
the Pacific with Food and Agriculture
Organization of the United Nations
(Since 2019)



PUBLISHER

CEO



ACHIEVEMENTS & APPRECIATIONS THROUGH THE YEARS

2011

TIMOR-LESTE DIVE
PHOTO CONTEST
Appreciation Plaque
from José Ramos-
Horta, President
of Timor-Leste

John Thet
(Asian Diver) For the
invaluable support
given to the Timor-
Leste Dive Photo
Contest



2014

MEDIA PUBLISHERS
ASSOCIATION OF
SINGAPORE (MPAS)
AWARDS 2014
Publisher of the Year
John Thet

ASIA DIVE ACADEMY
AWARDS 2014
Silent Hero of
Marine Conservation
John Thet

2015

MEDIA PUBLISHERS
ASSOCIATION OF
SINGAPORE (MPAS)
AWARDS 2015
Publisher of the Year
John Thet

ASIA DIVE ACADEMY
AWARDS 2015
Dive Industry
Publisher of the Year
John Thet

2016

ASIA DIVE ACADEMY
AWARDS 2016
Top Marine
Conservationist
John Thet



2011



2018



2022



MORE THAN JUST A DIVE SHOW

As we celebrate our 31st anniversary in 2025, I would like to extend a special mention to the people that have dedicated their lives to the advancement of the dive industry. These trailblazers and innovators – instructors, operators, manufacturers, explorers, scientists, filmmakers, and photographers, among many others – have played significant roles in shaping the industry into what it is today. It brings me great joy to know that once again many of them will be joining us at the ADEX shows in Singapore, China, Japan, Korea and Australia in 2025.

Over the years, I have formed countless strong friendships and built an extensive network of like-minded individuals who have offered unwavering encouragement and support. I am truly grateful for their presence in my life. Additionally, I must express my deepest gratitude to the Underwater360 team, dedicated individuals who have worked tirelessly to bring my vision to life.

One Ocean, One Love

JOHN THET

International Scuba Diving Hall of Fame 2024
CEO, Asia Dive Expo (ADEX)
Founder, Underwater360/Asian Geographic Society
Historical Diving Society Asia/Ocean Citizen
Publisher, Asian Geographic Magazines Pte Ltd
President, The Media Publishers Association Singapore (MPAS)

FOUNDER



2017

KOREAN PUBLIC
ART ASSOCIATION
Appreciation Award
John Thet
(Underwater360)
Contribution to work
on listing the culture
of *haenyeo* women
divers as UNESCO
Intangible Cultural
Heritage



2018

MERMAID
FEDERATION
INTERNATIONAL
Appointment of
John Thet as the
Honourable Advisor
2018-2020
Contribution towards
marine conservation
and guidance for MFI



2022

THE MALDIVES
TOURISM MINISTER
presented **John Thet**
with the prestigious
Maldives 50th
Anniversary
Gold Coin,
symbolising deep
appreciation for
his extraordinary
contribution to the
thriving field of
Maldives
marine tourism

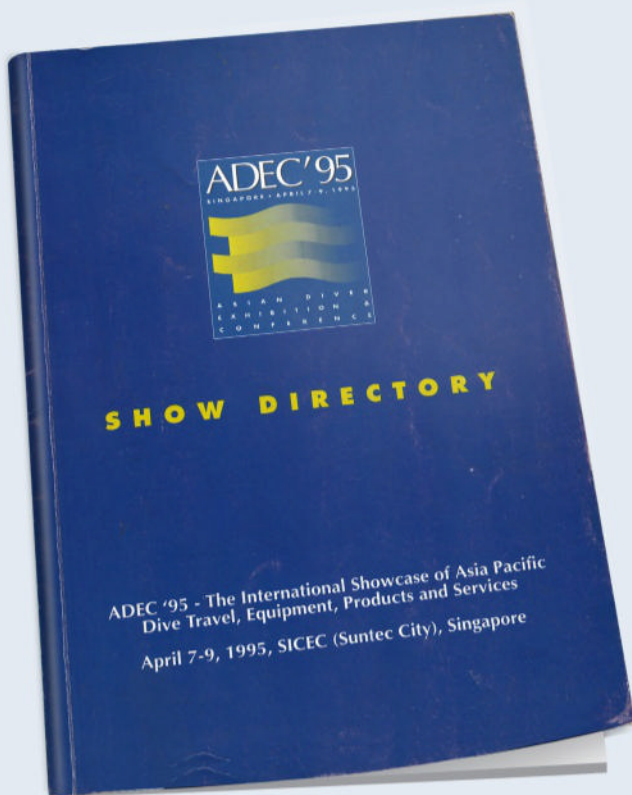
2024

John Thet was bestowed the
prestigious honour of being
inducted into the **International
Scuba Diving Hall of Fame**
(ISDHOF). This remarkable
achievement places him as the
fifth Asian individual to receive
this recognition, and quite
possibly the youngest luminary
in the industry to garner
such a distinction



JOIN US IN COMMEMORATING 31 INVALUABLE YEARS OF GROWTH,
LEADERSHIP, AND MOTIVATION.

ASIA'S LEADING DIVE HUB CELEBRATES



ADEC 1995
First

ASIA'S
FIRST
DIVE
SHOW

TIMELINE

ADEX 1995-1998

(4 YEARS)

Founded and managed by *Asian Diver* (Publisher, Rainer Sigel) and Chris Sweeting (Managing Director, Asia Business Press) in Singapore

ADEX 1999-2003

(5 YEARS)

Bangkok RAI Exhibitions, Thailand

ADEX 2004-2007

(4 YEARS)

Suntec Integrated Media, Singapore

ADEX 2008-2009

(2 YEARS)

TMX Show Productions, Singapore

ADEX 2010-PRESENT

(15 YEARS AND STILL
GOING STRONG)

ADEX has been successfully led by Underwater360 since 2010, with a clear vision and mission set forth by JOHN THET, the award-winning publisher of Asian Geographic Magazines Pte Ltd

FIRST DIVE SHOW IN ASIA

TO DEDICATE AN ANNUAL THEME TO ENDANGERED SPECIES,
HIGHLIGHTING ITS COMMITMENT TO MARINE CONSERVATION.

“THE BIG BLUE BOOK” Since **ADEX 2010**



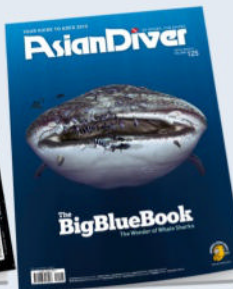
ADEX 2010
Dedicated to
SHARKS



ADEX 2011
Dedicated to
TURTLES



ADEX 2012
Dedicated to
MANTA RAYS



ADEX 2013
Dedicated to
WHALE SHARKS



ADEX 2014
Dedicated to
CORAL REEFS



ADEX 2015
Dedicated to
DOLPHINS



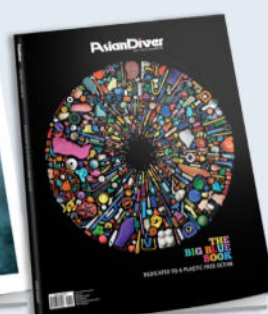
ADEX 2016
Dedicated to
SEAHORSES



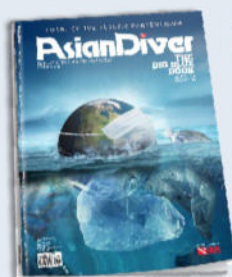
ADEX 2017
Dedicated to
CLIMATE CHANGE



ADEX 2018
Dedicated to
SHARKS



ADEX 2019
Dedicated to
A PLASTIC-FREE OCEAN



ADEX 2020
Dedicated to
A PLASTIC-FREE OCEAN



ADEX 2022
Dedicated to
THE BLUE WHALE



ADEX 2023
Dedicated to
WOMEN DIVERS



ADEX 2024
Dedicated to
**THE SUSTAINABLE
BLUE ECONOMY**



ADEX 2025
Dedicated to
CEPHALOPODS

- ENTERTAIN
- EDUCATE
- ENGAGE



2012
ASIAN PUBLISHING AWARDS
 BEST MULTIMEDIA INTEGRATION
 TO ENGAGE AUDIENCES
Scuba Diver TTL Issue 4/2012



2015
**MEDIA PUBLISHERS
 ASSOCIATION OF SINGAPORE
 (MPAS) AWARDS 2015**
 EXHIBITION OF THE YEAR (GOLD)
Asia Dive Expo 2014
 EVENT & PARTY OF THE YEAR (GOLD)
Asia Dive Expo 2014
 SPECIAL INTEREST MEDIA OF THE YEAR
Scuba Diver OCEAN PLANET



2016
**MEDIA PUBLISHERS
 ASSOCIATION OF SINGAPORE
 (MPAS) AWARDS 2016**
 EXHIBITION OF THE YEAR (GOLD)
Asia Dive Expo 2016



2017
**MEDIA PUBLISHERS
 ASSOCIATION OF SINGAPORE
 (MPAS) AWARDS 2017**
 EXHIBITION OF THE YEAR (GOLD)
Asia Dive Expo 2016



2018
**MEDIA PUBLISHERS
 ASSOCIATION OF SINGAPORE
 (MPAS) AWARDS 2018**
 EXHIBITION OF THE YEAR (SILVER)
Asia Dive Expo 2017



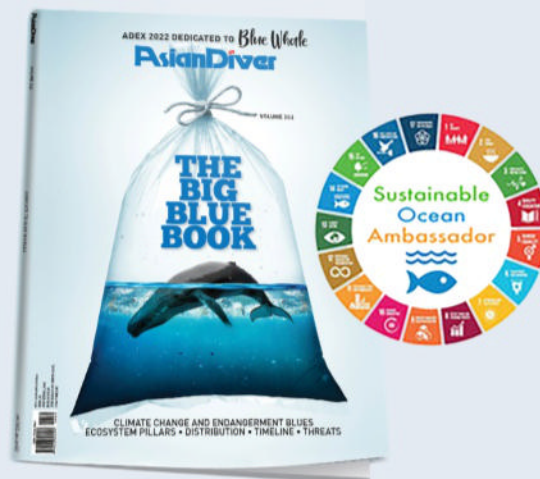
**SINGAPORE TOURISM
 AWARDS 2018**
 BEST EXHIBITION ORGANISER
Asia Dive Expo 2017



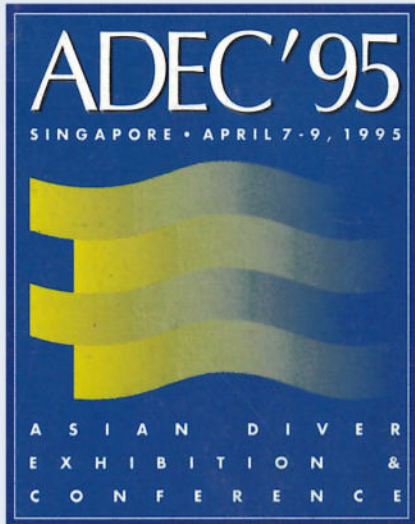
2019
**SUSTAINABLE
 OCEAN AMBASSADOR**
 AGRICULTURAL AND FOOD MARKETING
 ASSOCIATION FOR ASIA AND THE PACIFIC
 WITH FOOD AND AGRICULTURE
 ORGANIZATION OF THE UNITED NATIONS
Asia Dive Expo (ADEX)



2022
**SUSTAINABLE
 OCEAN AMBASSADOR**
 AGRICULTURAL AND FOOD MARKETING
 ASSOCIATION FOR ASIA AND THE PACIFIC
 WITH FOOD AND AGRICULTURE
 ORGANIZATION OF THE UNITED NATIONS
Asian Diver Magazine



FIRST DIVE SHOW IN ASIA
ADEC '95 – THE INTERNATIONAL
SHOWCASE OF ASIA PACIFIC DIVE
TRAVEL, EQUIPMENT, PRODUCTS
AND SERVICES APRIL 7-9, 1995,
SICEC (SUNTEC CITY), SINGAPORE.
ADEC 1995



FIRST DIVE SHOW IN ASIA
TO HAVE A PHOTO/VIDEO/ART
COMPETITION WITH **LIVE JUDGING**
Since **ADEX 2010**



LIVE JUDGING

A competition where a distinguished panel judges the work of some of the world's best photographers and videographers in front of a live audience



FIRST DIVE SHOW IN CHINA
IN 2005, ADEX HOSTED ITS
INAUGURAL DIVE SHOW IN
CHINA, **CDEX**. MANAGED
BY SUNTEC INTEGRATED
MEDIA SINGAPORE
CDEX 2005



FIRST MERMAID CHALLENGE IN ASIA
THE INAUGURAL ADEX
MERMAIDS CHALLENGE
ADEX Shenzhen 2017 was the
proud host of this remarkable
competition. As a result of this
momentous event, a plethora of
mermaid courses and certifications
from Asia have been flourishing and
gaining momentum ever since.
ADEX 2017



FIRST DIVE SHOW IN CHINA
RECOGNISED BY THE BEIJING PUBLIC
SAFETY & WELFARE FOUNDATION
This appreciation was awarded to
Asian Geographic Magazines for
their contribution and social
responsibility towards orphaned
and abandoned children in China.
ADEX CHINA 2019



ENIGMATIC WONDERS OF CEPHALOPOD SCIENCE

Cephalopods – a fascinating class of molluscs encompassing octopuses, squid, cuttlefish, and nautilus – continue to captivate scientists and the public alike with their remarkable intelligence, adaptability, and otherworldly beauty. Beyond their mesmerising displays of camouflage and complex problem-solving, recent research has unveiled startling new insights into their behaviour, cognition, and the discovery of previously unknown species, pushing the boundaries of our understanding of life in the deep.



Common octopus (*Octopus vulgaris*)



Caribbean reef squid (*Sepioteuthis sepioidea*)



Common cuttlefish (*Sepia officinalis*)



Chambered nautilus (*Nautilus pompilius*)

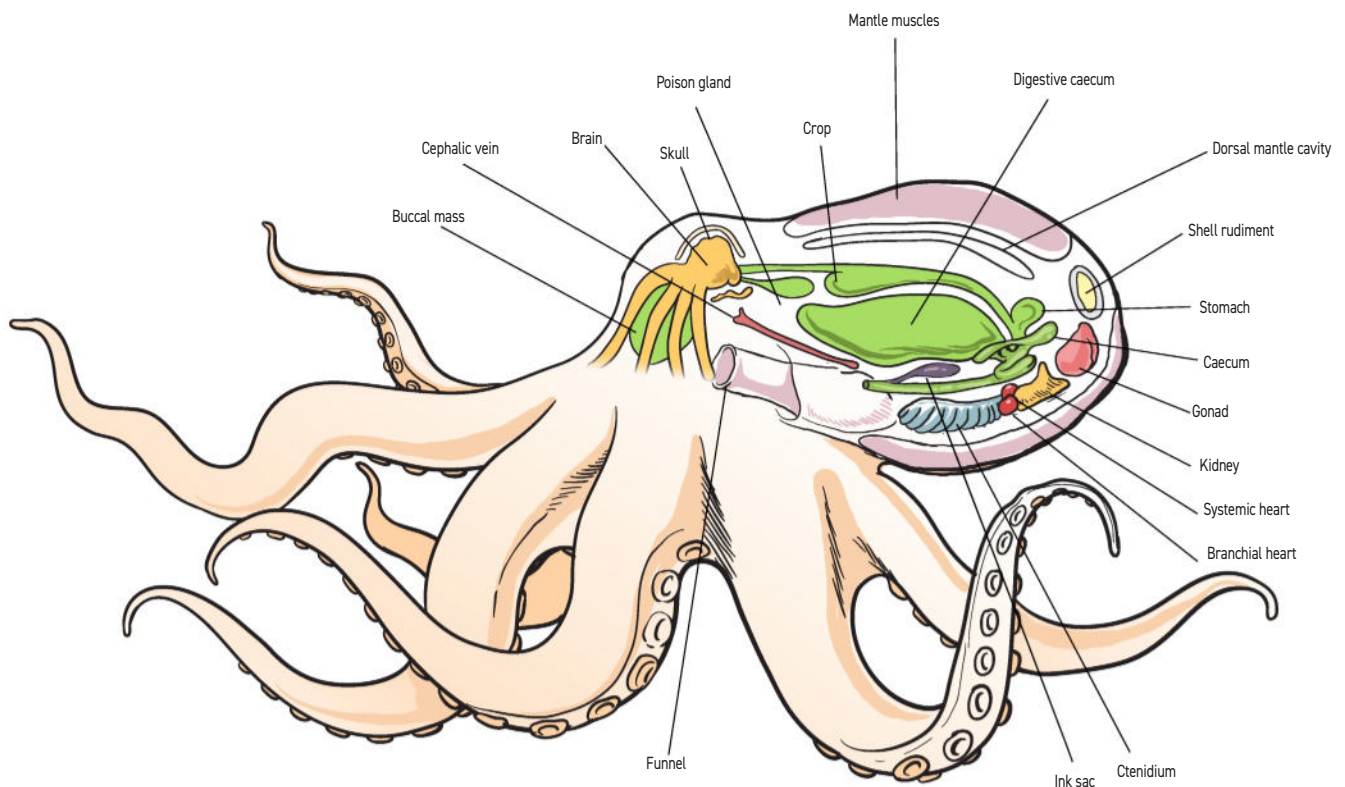
The Cognitive Canvas: Unravelling the Cephalopod Mind

For decades, the cephalopod brain has been a subject of intense scrutiny, challenging conventional notions of intelligence. Unlike vertebrates, their nervous systems are distributed, with a central brain and ganglia in their arms, allowing for a decentralised processing of information. In a sense, it's true that an octopus's arms have minds of their own. And it is this unique architecture that underpins their extraordinary abilities.

Recent studies have delved deeper into the complexities of cephalopod cognition. One area of focus is their capacity for learning and memory. Notably, Jennifer Mather and her

team at the University of Lethbridge, Alberta, Canada have conducted extensive research on octopus cognition, demonstrating their ability to learn complex tasks and retain information over time. In a classic experiment, they showed octopuses could learn to discriminate between objects based on visual cues and remember octopuses differences for weeks. Their work involving mazes, object discrimination, and even tool use has highlighted octopuses' remarkable cognitive flexibility. For instance, octopuses were observed opening child-proof pill bottles after simply observing another octopus achieve the very human feat.

INTERNAL ANATOMY OF AN OCTOPUS



The concept of sentience in cephalopods is also gaining traction. Observations of octopuses displaying playful behaviour, showing preferences for specific stimuli, and even exhibiting signs of pain have led to discussions about their emotional capacity. For instance, studies examining octopuses' responses to noxious stimuli, such as those performed by Robyn Crook at San Francisco State University, USA, suggest they experience and react to pain in a way that is far more sophisticated than previously thought. Crook's research involved observing octopuses' physiological and behavioural responses to tissue damage, providing evidence that they possess a centralised nociceptive system. In other words, octopuses were seen nursing injured limbs, or in some cases, self-amputating injured arms. This has significant ethical

implications for their use in research and aquaculture.

Recent research has even revealed that they may engage in social learning, observing and imitating the behaviours of other octopuses. Studies conducted by Tamar Gutnick and colleagues at the Hebrew University of Jerusalem, Israel demonstrated that octopuses can learn to navigate mazes faster after observing a "demonstrator" octopus complete the task. This finding challenges the long-held belief that cephalopods are solitary creatures, suggesting a more complex social structure than previously imagined. Does the ability to learn from others suggest the capacity for teaching, and therefore a kind of culture as well? For now, octopus teachers remain unproven, and solely in the realm of Netflix.

The Art of Deception: Camouflage and Communication

Cephalopods are masters of camouflage, capable of changing their skin colour and texture in milliseconds to blend seamlessly with their environment. This ability is not merely a passive defence mechanism; it is also a powerful tool for communication. Recent studies have revealed the intricate neural mechanisms underlying cephalopod camouflage. Researchers like Roger Hanlon at the Marine Biological Laboratory in Woods Hole Oceanographic Institution, USA have identified specialised cells called chromatophores, iridophores, and leucophores that work in concert to produce a dazzling array of colours and patterns. Hanlon's lab employs sophisticated imaging techniques to study the real-time neural control of these cells. They've discovered that the nervous system controls these cells with remarkable precision, allowing cephalopods to create complex visual displays, including disruptive camouflage patterns that break up their body outline.

Beyond camouflage, cephalopods use their skin patterns for communication. Cuttlefish, for example, engage in elaborate courtship displays, flashing vibrant colours and patterns to attract mates. Research by Sarah Zylinski and her team at the University of Bristol, UK has shown that cuttlefish use specific colour patterns and postural displays to signal their readiness to mate and to compete with rivals. Octopuses, too, use colour changes to signal aggression, submission, and other social cues. Field observations by David Scheel from Alaska Pacific University, USA have documented complex social interactions among giant Pacific octopuses, including displays of colour change during territorial disputes. The unique study areas he works in have become known as "Octopolis" or "Octlantis" and house an extraordinary density of these complex animals .

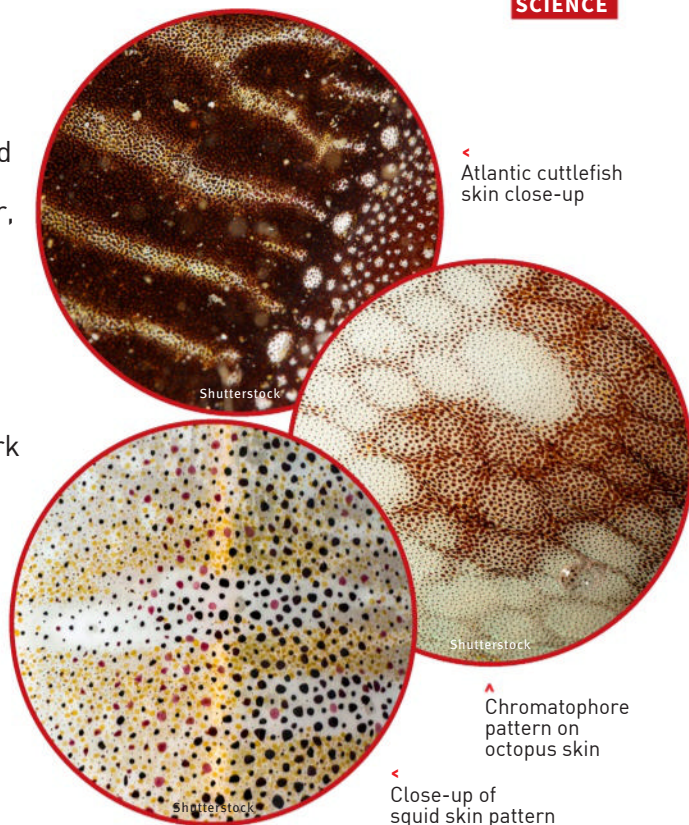
▼ Researchers have documented complex social interactions among giant Pacific octopuses



Shutterstock

Furthermore, recent research has explored the role of bioluminescence in cephalopod communication. Deep-sea squid, in particular, use bioluminescent flashes to attract prey, deter predators, and communicate with conspecifics. Researchers like Edith Widder at the Ocean Research & Conservation Association, Florida, USA have developed specialised deep-sea cameras to first mimic, attract, and then capture bioluminescent displays in their natural habitat. Widder's work has revealed the complex chemical reactions that produce these light displays, shedding light on the evolution of bioluminescence in the deep sea. Her "Medusa" camera system has captured rare footage of deep-sea squid using bioluminescence for both hunting and communication, and made her the first person to film the giant squid underwater.

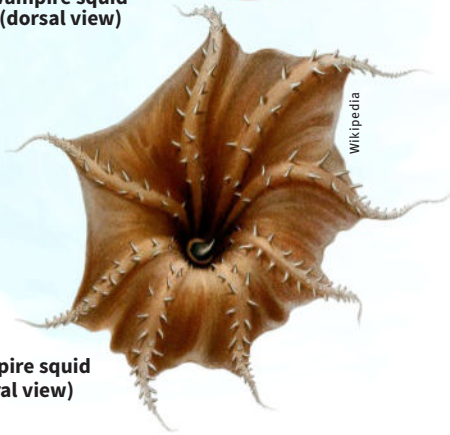
▼ Squid use bioluminescence for communication, attracting prey, and deterring predators





Vampire squid
(dorsal view)

Wikipedia



Vampire squid
(oral view)

Wikipedia



Julian Finn | Museums Victoria

Unveiling the Unknown: Discovering New Species in the Deep

The deep sea remains one of the most unexplored frontiers on Earth, and cephalopods are among its most fascinating inhabitants. Recent expeditions have led to the discovery of numerous new species, expanding our understanding of cephalopod diversity. Deep-sea exploration using remotely operated vehicles (ROVs) and submersibles has revealed a wealth of new cephalopod species, many of which are uniquely adapted to the extreme conditions of the deep sea.

Expeditions led by Michael Vecchione at the Smithsonian National Museum of Natural History, USA have been instrumental in documenting deep-sea cephalopod diversity. These discoveries include the enigmatic "dumpling squid", a small, bioluminescent species with a gelatinous body, and a new species of the "vampire squid" family, a deep-sea cephalopod with webbed arms and bioluminescent organs. Vecchione's team utilises advanced ROVs equipped with high-resolution cameras and sampling tools to collect specimens and document their behaviour *in situ*.

Genetic analysis has also played a crucial role in identifying new cephalopod species. By comparing the DNA of different cephalopod populations, researchers like Christopher Whalen at the American Museum of Natural History, USA have been able to identify subtle genetic differences that indicate the presence

▲ Close-up of a dumpling squid with vivid iridescent patterns and intricate textures, resting on the seafloor. A unique and mesmerizing cephalopod species

of distinct species. This approach has led to the discovery of numerous cryptic species that are morphologically similar but genetically distinct. Whalen's work involves phylogenetic analysis, which reconstructs evolutionary relationships based on genetic data. Whalen also argues that vampire squid, for instance, are better referred to as vampire octopuses.

The discovery of new cephalopod species has important implications for conservation. Many deep-sea cephalopods are vulnerable to overfishing and habitat destruction. By documenting their diversity and distribution, researchers can provide critical information for conservation efforts. Field surveys conducted by Janet Voight at the Field Museum, USA have been essential in mapping the distribution of deep-sea cephalopods and identifying areas of high biodiversity.

In 2015, the discovery of the "adorable" flapjack octopus, *Opisthoteuthis adorabilis*, captured the public eye. This species, with its flattened body and large eyes, has become a symbol of the deep sea's hidden wonders. Its discovery, documented by Stephanie Bush at the Monterey Bay Aquarium Research Institute (MBARI), USA, highlights the importance of continued exploration and research in these remote environments. MBARI's deep-sea ROVs have captured stunning footage of the flapjack octopus, revealing its unique behaviour and habitat.

The Future of Cephalopod Research: A Glimpse into the Unknown

The study of cephalopods is a rapidly evolving field, with new discoveries being made at an astonishing pace. Future research will likely focus on several key areas.

NEUROSCIENCE

Researchers are continuing to investigate the neural mechanisms underlying cephalopod intelligence, exploring the role of their decentralised nervous system and the potential for complex cognitive processes. Advanced imaging techniques, such as functional magnetic resonance imaging (fMRI), are being used to map the activity of the cephalopod brain, providing new insights into their cognitive abilities. Teams led by Binyamin Hochner at the Hebrew University of Jerusalem, Israel are at the forefront of this research, developing innovative methods to study the neural circuits of octopuses.

GENOMICS

The sequencing of cephalopod genomes is providing valuable information about their evolution, adaptation, and physiology. This information is being used to identify genes that are responsible for their unique traits, such as their ability to camouflage and regenerate limbs. Research by Daniel Rokhsar at the University of California, Berkeley, USA, and his colleagues has provided crucial insights into the octopus genome, revealing the genetic basis of their remarkable adaptability.



▼ Berry's bobtail squid is one of the famous residents of Anilao, Philippines

▲ Off Surin Island, Thailand, a cuttlefish cuddles up to the camera

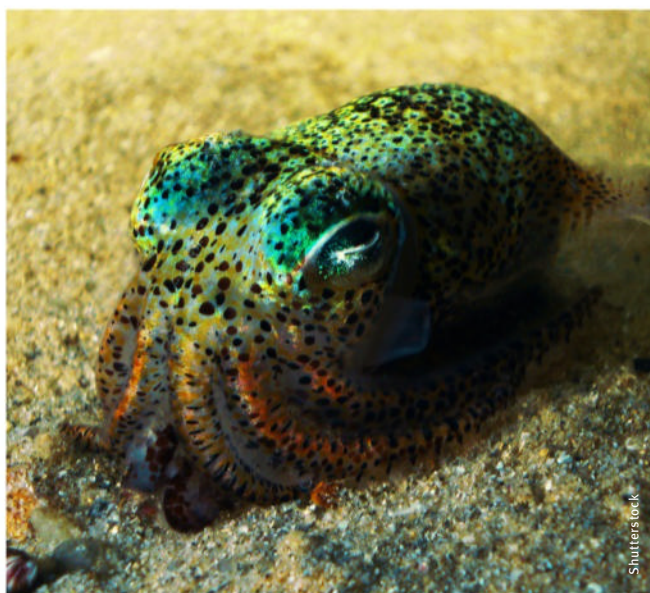
ECOLOGY

Researchers are investigating the role of cephalopods in marine ecosystems, studying their interactions with other species and their responses to environmental change. This research is crucial for understanding the impact of human activities on cephalopod populations and for developing effective conservation strategies. This research also makes for great Nature documentaries!

ROBOTICS AND BIOMIMETICS

Cephalopods' unique abilities are inspiring the development of new technologies, such as soft robots that can change shape and colour. By studying the principles of cephalopod locomotion and camouflage, engineers are creating innovative solutions for a wide range of applications.

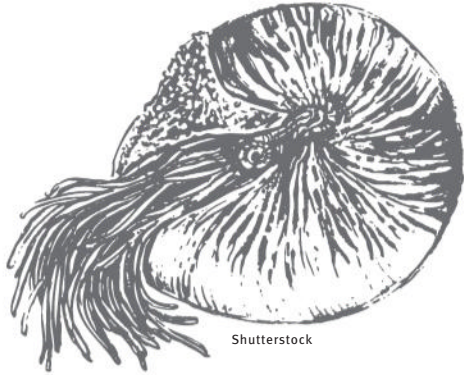
Cephalopods continue to amaze and inspire us with their remarkable intelligence, adaptability, and beauty. Recent research has shed light on their complex cognitive abilities, their mastery of camouflage and communication, and the discovery of numerous new species, even in places we thought we knew well. As we continue to explore the depths of the ocean and delve into the mysteries of the cephalopod mind, we are sure to uncover even more wonders in the years to come. **AD**



CEPHALOPOD CHRONICLES: A TIMELINE

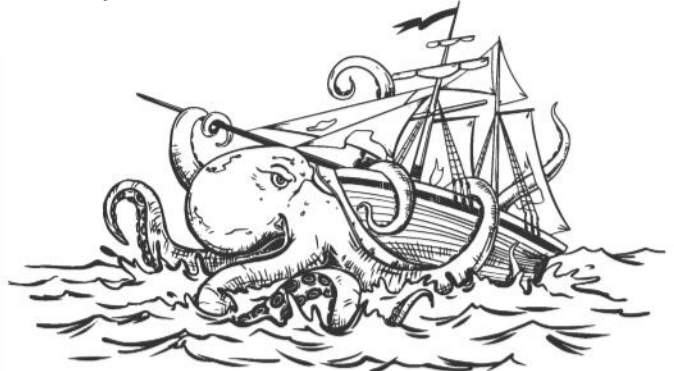
A compelling glimpse into the long and intriguing relationship between humans and cephalopods

We dived deep into the archives to bring you a fascinating timeline of cephalopod milestones through human history:



530 million years ago (Cambrian Period)

The earliest undisputed cephalopod fossils, such as nautilus, appear. These ancient nautilus were among the first large predators in the oceans.



1500 BCE (Ancient Mediterranean)

Early Greek and Phoenician traders likely encountered large squid and octopuses, leading to the development of myths and legends of sea monsters.



3000 BCE (Ancient Crete)

Minoan pottery and artwork depict octopuses, showcasing early human fascination with these creatures. These stylised depictions are some of the oldest known.



79 CE (Pompeii)

A mosaic depicting an octopus is preserved in the ruins of Pompeii, demonstrating the creature's continued presence in Roman art.



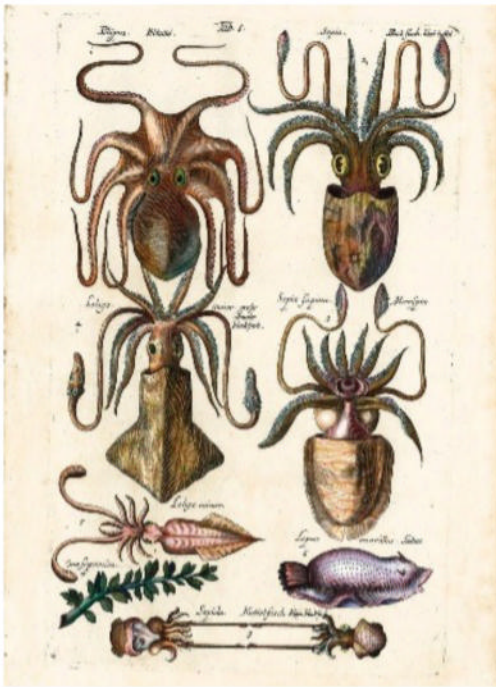
1200 CE (Icelandic Sagas)

Norse sagas begin to detail encounters with the "Kraken", a legendary sea monster believed to be a giant squid or octopus.



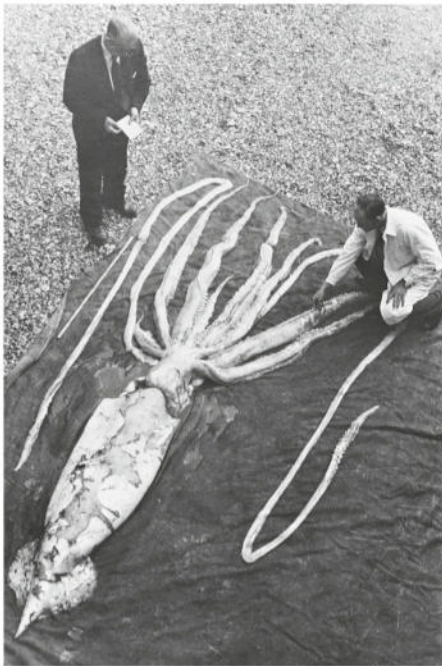
1555 CE (Olaus Magnus, *Carta Marina*)

The Swedish cartographer Olaus Magnus includes detailed depictions of sea monsters, including Kraken-like creatures, in his map, contributing to the widespread belief in their existence.



1639 (First Scientific Illustration)

Johannes Jonston's "Historiae naturalis de piscibus et cetis libri V" includes some of the first relatively accurate scientific illustrations of octopuses.



1857 (Japetus Steenstrup)

Danish zoologist Japetus Steenstrup officially describes the giant squid genus *Architeuthis*, based on beaks and fragments washed ashore, moving the Kraken from myth to biological reality.



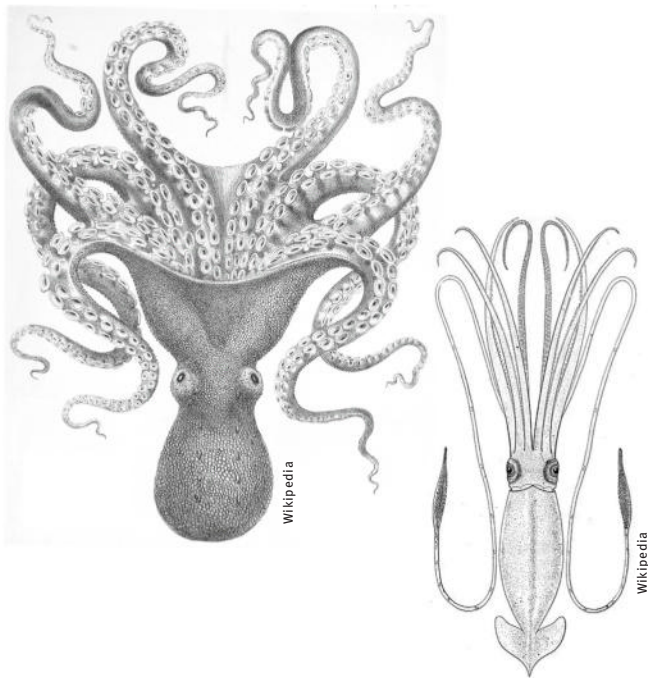
1873 (First Giant Squid Capture)

A giant squid is captured off Newfoundland, Canada, providing physical evidence and solidifying the existence of *Architeuthis* in the scientific community.



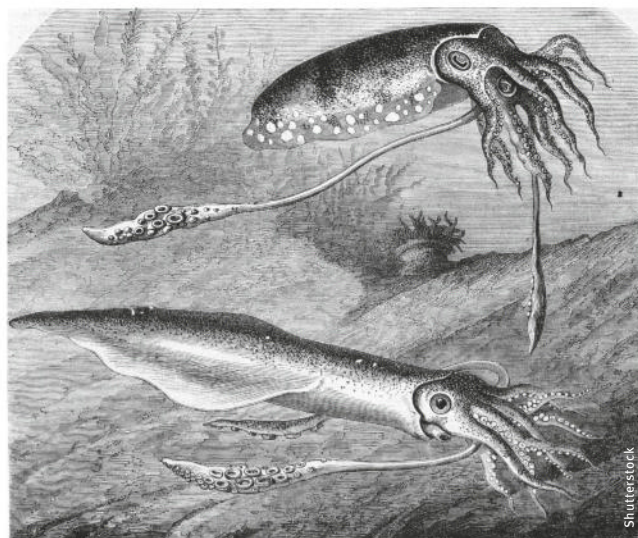
1915 (First Underwater Footage)

John Ernest Williamson – the first person to record motion pictures underwater – filmed the earliest known footage of an octopus, revealing behaviours in their natural habitat.



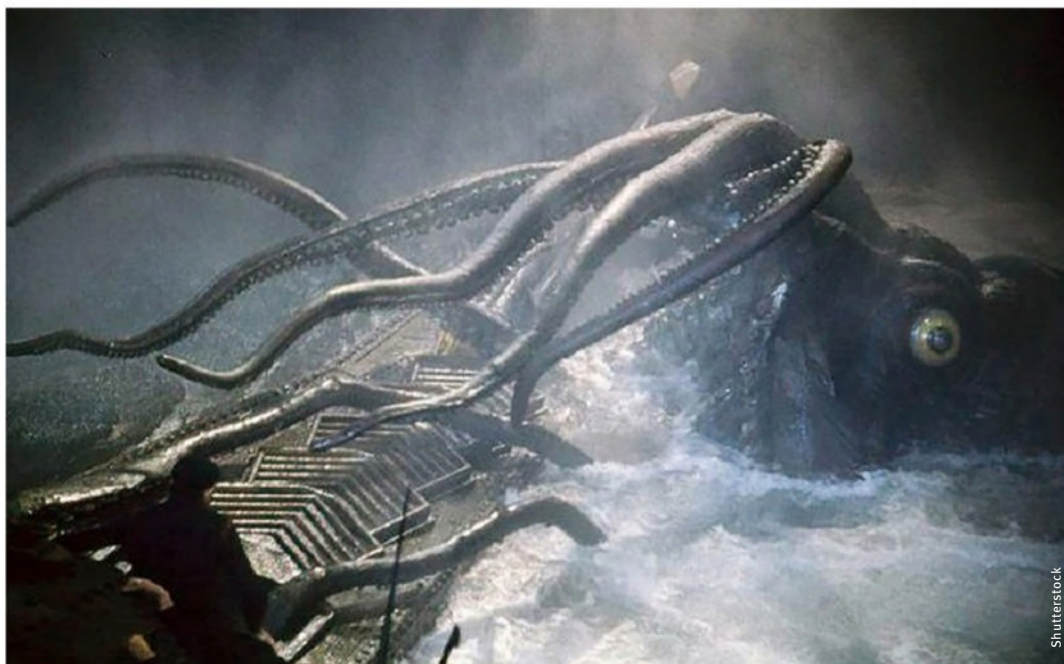
1950s–1960s (Experimental Research)

Scientists begin conducting experiments on octopus intelligence, demonstrating their problem-solving abilities and learning capabilities in laboratory settings.



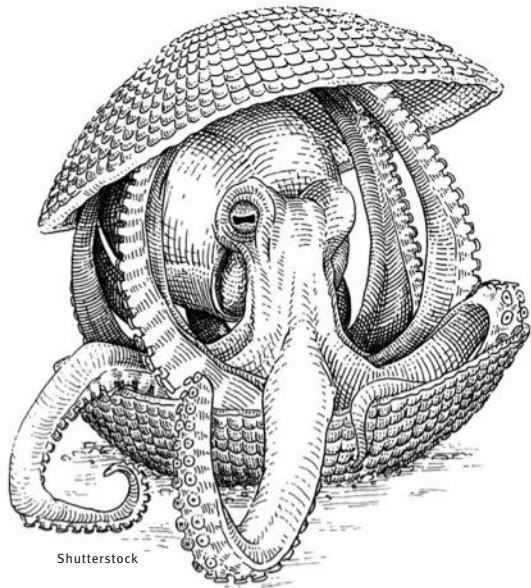
1963 (Gilbert Voss, *Cephalopods of the World*)

This comprehensive work by Gilbert Voss became a foundational text for cephalopod taxonomy and distribution.



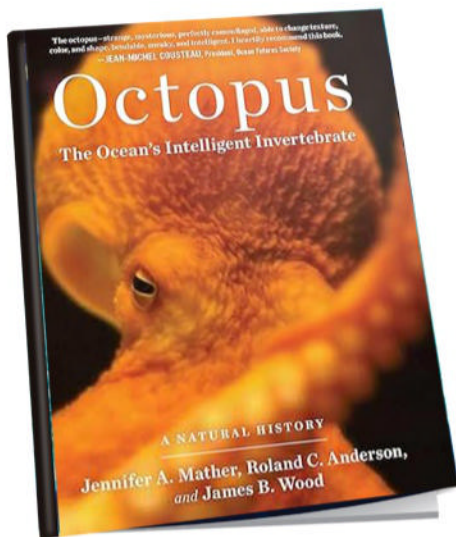
1990s (Deep-Sea Exploration)

Advances in deep-sea submersible technology allow for the observation and filming of giant squid in their natural deep-sea environments.



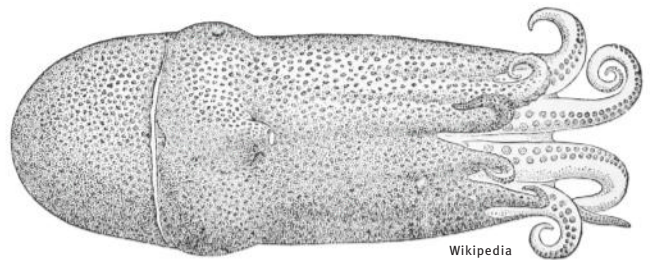
2009 (Discovery of *Abdoopus* tool use)

Research showed that the vined octopus carries coconut shells for shelter. Later studies showed that certain octopuses, like those in the *Abdoopus* genus, collect and carry shells for defence, demonstrating sophisticated tool use.

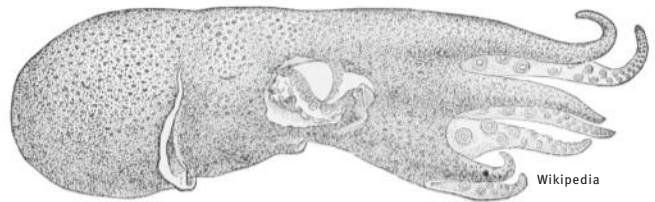


2012 (Jennifer Mather, Octopus Cognition)

Research by Jennifer Mather and others continues to highlight the complex cognitive abilities of octopuses, including their capacity for learning, problem-solving, fear responses, and individual personalities.



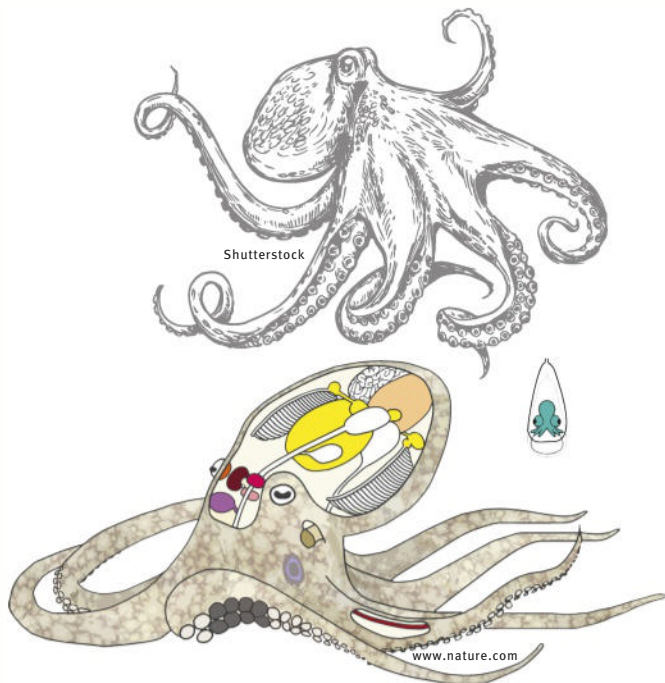
Young female of *Haliphron atlanticus*



Young male of *Haliphron atlanticus*

2015 (Discovery of *Haliphron atlanticus* brooding)

The discovery of a large female *Haliphron atlanticus* brooding eggs within her arms significantly changed understanding of deep-sea cephalopod behaviour. A similar discovery showed another species brooding her eggs for more than four years.



2015-19 (Octopus Genome Sequencing)

The sequencing of the octopus genome reveals the unique genetic adaptations that contribute to their complex nervous system and remarkable abilities.



2024 (Discovery of new vampire squid)

A new species of vampire squid is discovered in China, increasing our understanding of the diversity of deep sea cephalopods, and revealing that the deep still holds many secrets.



New species of *Muusoctopus* (2004)



New species of *Dorado octopus* 2023

2025- (ongoing research)

Ongoing research into cephalopod behaviour, intelligence, and genetics continues to reveal new insights into these fascinating creatures, as well as reveal new species never seen before. **AD**

Australia's Giant Cuttlefish Aggregation

Text by **Nicolas Remy**

Photos by **Nicolas Remy** and **Léna Remy**

Every winter, as the cold settles over southern Australia, a natural spectacle unfolds off the coast of the small town of Whyalla. Tens of thousands of giant cuttlefish, scientifically known as *Sepia apama*, converge for their annual breeding ritual. This unique phenomenon offers a rare glimpse into the behaviour of the world's largest cuttlefish and attracts divers and snorkellers alike. This awe-inspiring event has been featured in numerous documentaries such as the renowned *Blue Planet II*, yet it is surprisingly accessible to the public, just a few fin strokes away from shore.

When two males can't decide peacefully who will win the female over, the next option is fight



Nikon D810 in Nauticam housing,
Nikon 28-70mm f/2.8 lens,
Nauticam WACP-1B,
2x Ikelite DS230 strobes
(f/11, 1/80s, ISO 250)





Meet *Sepia Apama*, the World's Largest Cuttlefish

The Australian giant cuttlefish is the largest of its kind, with males reaching up to 60 centimetres in body length (or a metre, including tentacles) and weighing as much as 10 kilograms. With three hearts and blue blood, these creatures captivate with their alien-like appearance and complex behaviours. While they lack colour vision, giant cuttlefish possess a remarkable 360-degree field of view, enabling them to spot predators, potential mates, and approaching underwater photographers with ease.

Known for their extraordinary camouflage, these animals can change not only the colour but also the texture of their skin, to

blend seamlessly into their surroundings. During breeding season, males use this ability to impress females with pulsating patterns and bold displays. Stripes of light and dark race across their bodies in a dazzling spectacle designed to outshine their rivals.

▼ A male giant cuttlefish in the shallows



Nikon Z9 in Nauticam housing,
Nikon Z 24–50mm f/4–6.3 lens,
Nauticam FCP-1,
2x Backscatter Hybrid Flash
(f/13, 1/125s, ISO 250)

➤ With so many giant cuttlefish around, a visit to Whyalla offers plenty of photographic opportunities



Nikon Z9 in Nauticam housing,
Nikon Z 24–50mm f/4–6.3 lens,
Nauticam FCP-1,
2x Backscatter Hybrid Flash,
2x Retra Flash Pro strobes
(f/16, 1/100s, ISO 200)





Two giant cuttlefish mating



Nikon D810 in Nauticam housing,
Nikon 28-70mm f/2.8 lens,
Nauticam WACP-1B,
2x Ikelite DS230 strobes
(f/11, 1/125s, ISO 250)



“While they lack colour vision, giant cuttlefish possess a remarkable 360-degree field of view, enabling them to spot predators, potential mates, and approaching underwater photographers with ease.”



The Breeding Spectacle of Whyalla

Though typically solitary creatures, giant cuttlefish gather by the tens of thousands each winter in the northern Spencer Gulf. They are drawn to a 10-kilometre stretch of rocky coastline near Whyalla, where flat rocks provide ideal egg-laying sites. The shallow waters between Point Lowly and Black Point host the largest concentrations of cuttlefish from May to August, transforming the area into a vibrant underwater arena.

Stony Point, the most accessible dive site, features a walkway and a chain that visitors can hold to steady themselves and safely enter the water. Here, divers can witness seduction games, fierce male rivalries and mating attempts. With an average of 11 males vying for every female, competition is intense, often escalating to violent confrontations. Predators like dolphins, seals, and eagle rays also join the melee, taking advantage of cuttlefish distracted and weakened by their reproductive fervour.

▲ A male giant cuttlefish tries to hide the female he just mated with. With an 11:1 male-to-female ratio, competition is intense



Nikon Z9 in Nauticam housing,
Nikon Z 24–50mm f/4–6.3 lens,
Nauticam FCP-1, 2x Backscatter Hybrid Flash
(f/13, 1/200s, ISO 200)

> A southern eagle ray feasting on an exhausted giant cuttlefish

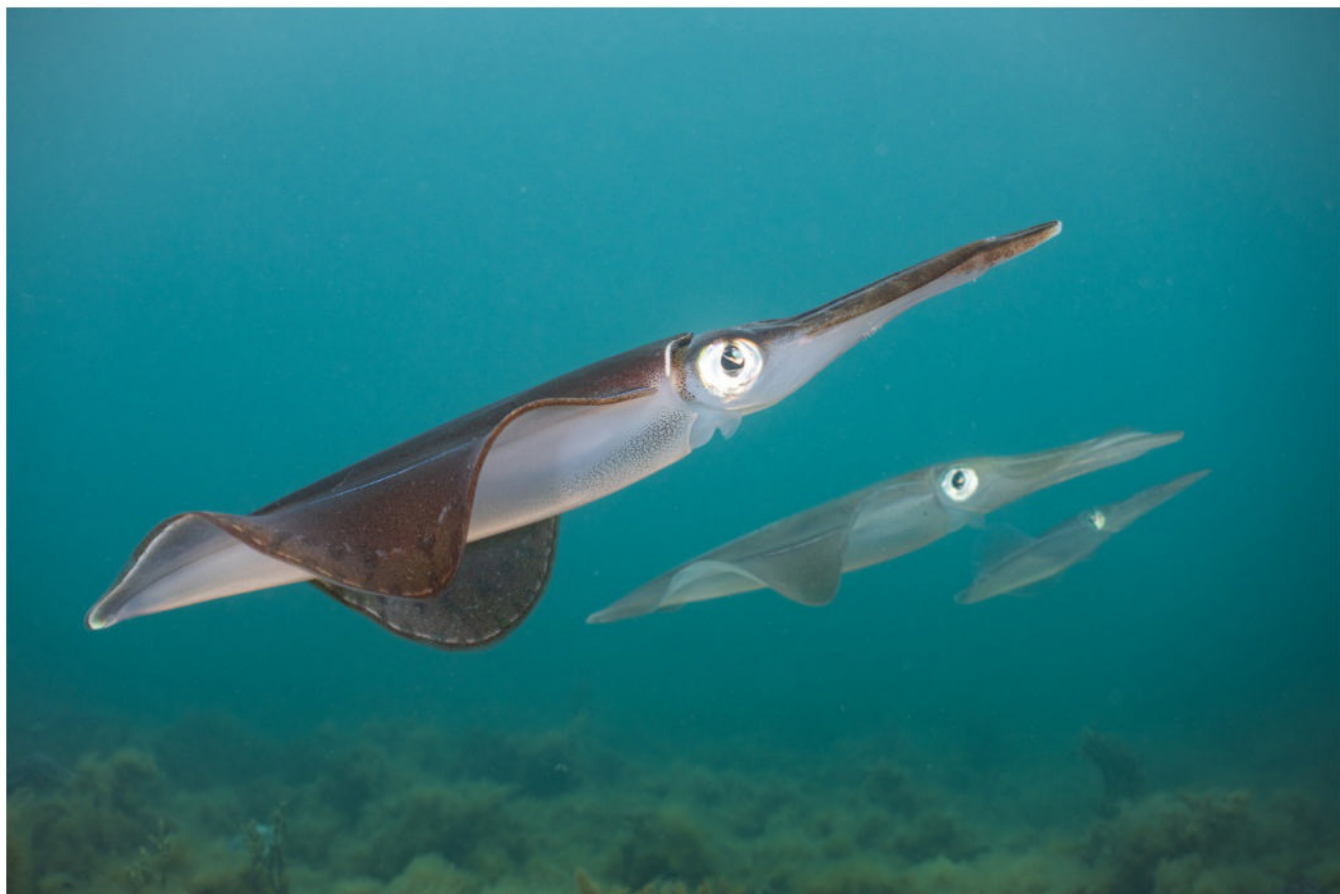


Nikon Z9 in Nauticam housing,
Nikon Z 24–50mm f/4–6.3 lens,
Nauticam FCP-1, 2x Backscatter Hybrid Flash
(f/13, 1/200s, ISO 200)

> ▲ Giant cuttlefish are the main cephalopod species, but there are also some southern calamari



Nikon D810 in Nauticam housing,
Nikon 28–70mm f/2.8 lens,
Nauticam WACP-1B, 2x Ikelite DS230 strobes
(f/9, 1/125s, ISO 200)





A Game of Seduction and Survival

Like other cuttlefish species, males and females pair up head to head, entwining their arms for about two minutes while the male transfers a sperm packet to the female. She can later select which male's sperm to use for fertilisation, possibly rejecting those who imposed themselves rather than win her favour!

To secure their genetic legacy, dominant males guard their chosen mates, fending off rivals while the female is hidden below them or behind rocks. For smaller, less physically imposing males, deception becomes the key to success. These "sneaker males" make themselves

look as small as possible, mimicking female appearance to slip past dominant males and mate discreetly.

▲ A "sneaky male" (bottom-right) has managed to steer a female away from the dominant male (top-left) which is now observing the lovebirds with frustration. Both males carry the scars of numerous fights



Nikon Z9 in Nauticam housing,
Nikon Z 24–50mm f/4–6.3 lens,
Nauticam FCP-1,
2x Backscatter Hybrid Flash
(f/13, 1/125s, ISO 250)



A large dominant male (top) has just realized that it has been conned by a "sneaky male" (yellow individual), which managed to mate with the female (left), passing for one. It is now trying separate the love birds



Nikon D810 in Nauticam housing,
Nikon 28–70mm f/2.8 lens,
Nauticam WACP-1B,
2x Ikelite DS230 strobes
(f/13, 1/125s, ISO 250)

A male giant cuttlefish is attempting to hide the female he previously mated with, from approaching rivals



Nikon D810 in Nauticam housing,
Nikon 28-70mm f/2.8 lens,
Nauticam WACP-1B,
2x Ikelite DS230 strobes
(f/10, 1/125s, ISO 250)



When two males compete for a female, they stretch their tentacles to appear larger, engaging in side-by-side displays to gauge each other. Whilst this usually succeeds in determining a winner peacefully, sometimes fights erupt, with one male grabbing the other one violently, in an attempt to bite. This phenomenon, aptly called “cuttlefish rage”, is the reason why more and more males bear scars as the season progresses.

▼ Two male giant cuttlefish challenge each other by extending their arms and making themselves look as big as possible

📷 Nikon D810 in Nauticam housing, Nikon 28–70mm f/2.8 lens, Nauticam WACP-1B, 2x Ikelite DS230 strobes (f/9, 1/125s, ISO 250)

➤ When peacemaking between males fails, conflict is the only way to resolve matters

📷 Nikon D810 in Nauticam housing, Nikon 28–70mm f/2.8 lens, Nauticam WACP-1B, 2x Ikelite DS230 strobes (f/11, 1/125s, ISO 250)



— “This phenomenon, aptly called ‘cuttlefish rage’, is the reason why more and more males bear scars as the season progresses.”

➤ Two giant cuttlefish mating, while another male waits nearby, hoping to be next

📷 Nikon Z9 in Nauticam housing, Nikon Z 24–50mm f/4–6.3 lens, Nauticam FCP-1, 2x Backscatter Hybrid Flash (f/13, 1/1200s, ISO 200)



Diving with Giant Cuttlefish

Whyalla has embraced its status as a cuttlefish tourism hotspot and invested in infrastructure to welcome local and international visitors. Stony Point now features a two-wheel-drive road access, parking, restrooms, changing facilities, and even a café. The shallow dive sites, ranging from two to four metres depth, make this spectacle accessible to a wide range of visitors. However, water temperatures drop from 17°C in May to a chilly 11°C by August, making a thick wetsuit or, preferably, a drysuit essential for comfort.

While underwater, divers must tread carefully to avoid disturbing the cuttlefish or damaging their environment. First, progressing slowly will let you get closer

to the action, and second, female cuttlefish often lay eggs beneath flat rocks, so be careful of your finning technique and avoid holding onto these. Visibility can vary from 3 to 10 metres, but with the sheer number of cuttlefish present, it won't be difficult to spot *Sepia apama*, regardless of the water clarity.

Those divers seeking a little more privacy can drive south along the rugged Cuttlefish Drive, and access less-visited sections of the coastline, between Stony Point and Black Point. When venturing there, you will likely be the only humans amongst the cephalopods, but care must be taken when getting to the water, as the rocks can be unstable to walk over.



▲ Whyalla's cuttlefish gathering presents lots of photographic opportunities



Nikon D810 in Nauticam housing,
Nikon 28-70mm f/2.8 lens,
Nauticam WACP-1B, 2x Ikelite DS230 strobes
(f/11, 1/250s, ISO 250)



> Three male giant cuttlefish challenge each other by extending their arms and pulsating mesmerising displays on their bodies



Nikon Z9 in Nauticam housing,
Nikon Z 24-50mm f/4-6.3 lens,
Nauticam FCP-1, 2x Backscatter Hybrid Flash
(f/13, 1/80s, ISO 100)



> It is best for giant cuttlefish to be tucked in the reef when mating, for a better chance to continue uninterrupted by rival males



Nikon Z9 in Nauticam housing,
Nikon Z 24-50mm f/4-6.3 lens,
Nauticam FCP-1,
2x Backscatter Hybrid Flash
(f/14, 1/200s, ISO 200)



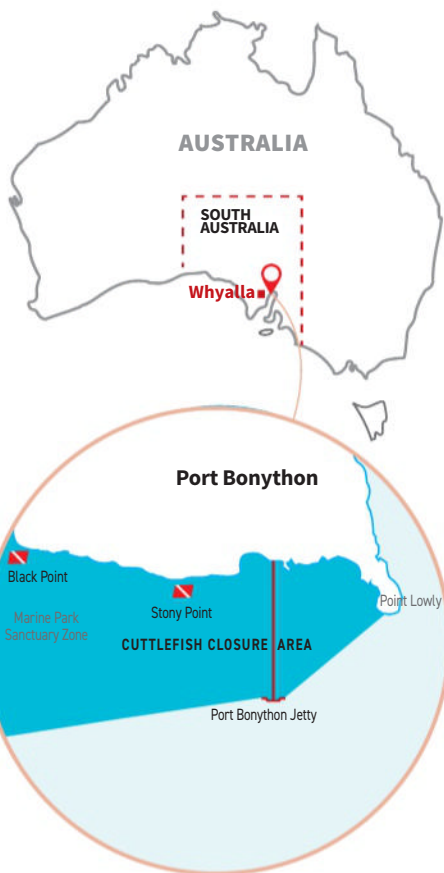


A Delicate Balance

Besides divers coming to see them, giant cuttlefish are also popular with recreational and professional fishers, and their numbers have fluctuated over time. Overfishing in the 1990s caused a population collapse, prompting protective measures after numbers plummeted in 1996–97. While populations rebounded to over 240,000 by 2020, recent estimates for 2024 suggest a decline to around 80,000. Environmental factors such as water temperature seem to influence population dynamics, and also turbidity, which makes counting difficult.

Conclusion

The yearly aggregation of giant cuttlefish near Whyalla offers an unparalleled opportunity to witness one of Nature's most mesmerising spectacles. If you do make the journey to remote Whyalla, consider road-tripping around South Australia, a beautiful part of the world where you can also cage-dive with great white sharks (from Port Lincoln) and encounter the elegant leafy seadragon, which is found only in portions of Australia's southern coastline. **AD**



< A school of salmon passes by on the dive site

Ⓚ Nikon Z9 in Nauticam housing, Nikon Z 24–50mm f/4–6.3 lens, Nauticam FCP-1, 2x Backscatter Hybrid Flash (f/13, 1/200s, ISO 250)

<< Driving south from Stony Point gives you access to other shore-diving sites, where you are much less likely to encounter other divers

Ⓚ DJI Mini 4 Pro (f/1.7, 1/4000s, ISO 100)



Nicolas Remy
France/Australia
ADEX Speaker 2025
VOO Moderator

Nicolas has been attracted to the ocean since his childhood, living near the Atlantic coast of Cameroon. The rolling waves there weren't suited to scuba or snorkelling, so he only became a diver at 23, when he was in Australia as an exchange student. By that time, he had already read two underwater photography books and couldn't wait to take a camera underwater.

Over the years, he has been honoured with over 40 international awards, including category wins in Ocean Photographer of the Year, DPG Masters, Ocean Art, and the World Shootout, to name a few. He has authored dozens of articles for print and digital dive magazines, and is presently a field editor for www.DivePhotoGuide.com.

In 2021, he left a 14-year corporate career to dedicate himself to underwater photography and created The Underwater Club (TUC), an online photography school and community, with members in 18 countries (and counting). TUC has everything he wished was available when he was learning underwater photography – bite-sized, self-paced courses, live masterclasses, support forums and live Q&A calls, where he connects with members directly.

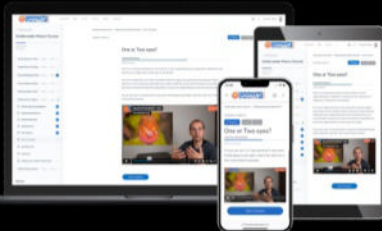
Nicolas is also an ambassador for Nauticam and Mares, and is deeply grateful for their support with high-end photographic and diving equipment.



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TOP 10 CEPHALOPODS TO FIND ON YOUR NEXT DIVE



1 Broadclub Cuttlefish (*Ascarosepion latimanus*)



2 Flamboyant Cuttlefish (*Ascarosepion pfefferi*)



3 Mimic Octopus (*Thaumoctopus mimicus*)



4 Wonderpus Octopus (*Wunderpus photogenicus*)



5 Reef Octopus (*Octopus cyanea*)



6 Blue-Ringed Octopus (*Hapalochlaena* spp.)



7 Bigfin Reef Squid (*Sepioteuthis lessoniana*)



8 Two-Toned Pygmy Squid (*Idiosepius pygmaeus*)



9 East Asian Common Octopus (*Octopus sinensis*)



10 Chambered Nautilus (*Nautilus pompilius*)

BROADCLUB CUTTLEFISH

(*Ascarosepion latimanus*)

The broadclub cuttlefish is one of the most common cuttlefish species encountered by divers in Southeast Asia. Known for its ability to rapidly change colour and texture, it is often seen hovering near coral reefs or sandy bottoms. Broadclub cuttlefish are active predators, feeding on small fish, shrimp, and crabs. They are also known for their elaborate mating displays, where males flash vibrant patterns to attract females.

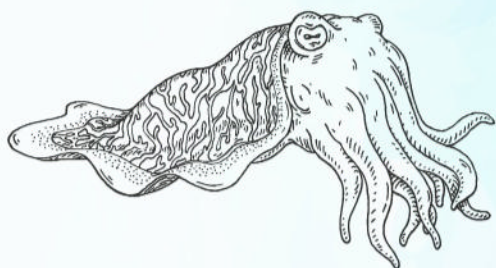
First Described

1832 by Quoy &
Gaimard (*Sepia latimanus*)

Size

Mantle length

UP TO
5 CENTIMETRES



Depth Range

3-55
METRES





SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Sepiida
Family : Sepiidae
Genus : *Ascarosepion*
Species : *A. latimanus*

CONSERVATION STATUS

Data Deficient

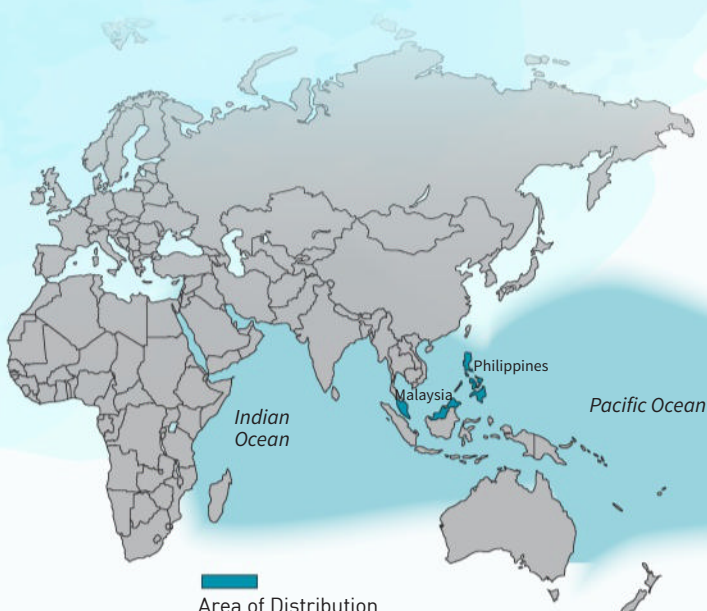
DIET

Small shrimps,
fish and crabs



GLOBAL DISTRIBUTION

Indian Ocean to western Pacific, including
Indonesia, Malaysia, Philippines, etc.



DIVE SITES

Numerous, such as
Raja Ampat (Indonesia),
Similan Islands (Thailand),
Tubbataha Reefs (Philippines)

FLAMBOYANT CUTTLEFISH

(*Ascarosepion pfefferi*)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Sepiida
Family : Sepiidae
Genus : *Ascarosepion*
Species : *A. pfefferi*

CONSERVATION STATUS

Data Deficient

First Described

1885 by Hoyle
(*Metasepia pfefferi*)

This small but striking cuttlefish is a favourite among divers for its vivid colour displays. Unlike most cuttlefish, it “walks” along the seafloor using modified arms. It is highly toxic, with venomous flesh that deters predators. Flamboyant cuttlefish are often found in sandy or muddy areas near coral reefs.



Size

Mantle length

6-8
CENTIMETRES



Depth Range

3-86
METRES



GLOBAL DISTRIBUTION

Indo-Pacific (Australia, Papua New Guinea, Indonesia, Malaysia, Philippines, etc.)



DIVE SITES

Lembeh Strait (Indonesia),
Mabul Island (Malaysia),
Anilao (Philippines)



Flamboyant cuttlefish
are a favourite in
Anilao, Philippines

Shutterstock



Capturing flamboyant
cuttlefish eggs hatching is
a photographic challenge

Shutterstock

MIMIC OCTOPUS

(*Thaumoctopus mimicus*)

This extraordinary octopus is renowned for its ability to impersonate other marine animals such as lionfish, sea snakes, and flatfish to evade predators. Found on sandy bottoms near reefs, it uses its mimicry both as a defence mechanism and a hunting strategy. Its diet includes small crustaceans and worms.

First Described

1998 by
Norman & Hochberg

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Octopoda
Family : Octopodidae
Genus : *Thaumoctopus*
Species : *T. mimicus*

CONSERVATION STATUS

Data Deficient

Size

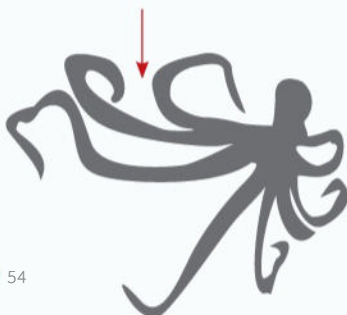
Arm span

UP TO
60 CENTIMETRES



Depth Range

2-37
METRES



GLOBAL DISTRIBUTION

Indo-Pacific (West Pacific)
(Indonesia, Malaysia, Philippines,
Australia, etc.)

DIVE SITES

Numerous, such as
Lembah Strait (Indonesia),
Mabul Island (Malaysia),
Dauin (Philippines)





The mimic octopus was first discovered in 1998, off the coast of Sulawesi, Indonesia

Shutterstock



Mimic octopuses impersonate other animals to elude predators

Shutterstock

WONDERPUS OCTOPUS

(*Wunderpus photogenicus*)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
 Phylum : Mollusca
 Class : Cephalopoda
 Order : Octopoda
 Family : Octopodidae
 Genus : *Wunderpus*
 Species : *W. photogenicus*

CONSERVATION STATUS

EX EW CR EN VU NT **LC**

Extinct Threatened Least Concern

First Described

Early 21st century
 by Hochberg *et al.*

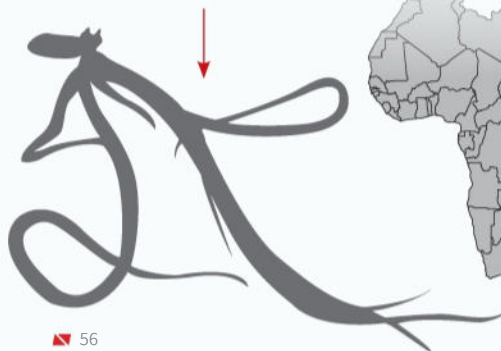
Size

23
 CENTIMETRES



Depth Range

5-25
 METRES



Known for its striking brown-and-white patterns, the wonderpus octopus is a prized sighting for underwater photographers. It lives in sandy or black sand areas where it builds burrows for shelter. Its diet consists of small crustaceans and fish. Preferring to hunt at dusk or dawn, and occupying their dens for weeks at a time, wonderpuses are also known for their elaborate mating displays.

GLOBAL DISTRIBUTION

Indo-West Pacific;
 Indo-Malayan Archipelago



DIVE SITES

Lembeh Strait (Indonesia),
 Alor Island (Indonesia),
 Dauin (Philippines), etc.



Wonderpus octopuses
love black sand bottoms,
as here in the Philippines

Shutterstock



With its dramatic colour
pattern, the wunderpus has
earned the "photogenic"
in its scientific name!

Shutterstock

REEF OCTOPUS

(*Octopus cyanea*)

Also known as the big blue octopus, this species is commonly encountered in coral reef environments across Southeast Asia. It is highly intelligent and can quickly camouflage itself among corals or rocks. Reef octopuses feed on crabs, shrimp, and molluscs and are active during the day and at dusk. Reef octopuses end their lives in epic fashion, like many octo species: males die after mating, and the females after brooding.

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Octopoda
Family : Octopodidae
Genus : *Octopus*
Species : *O. cyanea*

CONSERVATION STATUS

EX EW CR EN VU NT LC
Extinct Threatened Least Concern

Depth Range

1-50 METRES

First Described

1849 by Gray

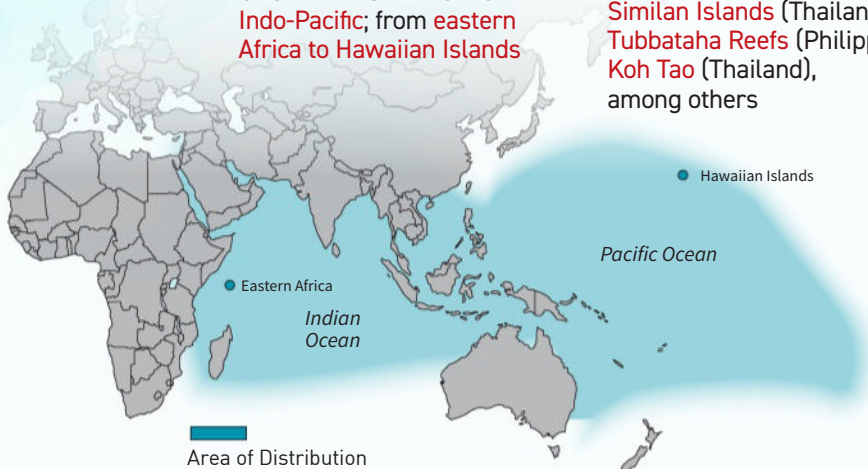


DIVE SITES

In Southeast Asia, good sites can be found around the **Similan Islands** (Thailand), **Tubbataha Reefs** (Philippines), **Koh Tao** (Thailand), among others

GLOBAL DISTRIBUTION

Indo-Pacific; from eastern Africa to Hawaiian Islands



Size

Arm span

UP TO 1 METRES





Cyanea means dark blue, and reef octopuses, aka big blue octopuses, have dark blue circles all over their skin

Shutterstock



As it moves, the reef octopus makes changes in its appearance to match the substrate beneath

Shutterstock

BLUE-RINGED OCTOPUS

(*Hapalochlaena* spp.)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Octopoda
Family : Octopodidae
Genus : *Hapalochlaena*
Species : *Hapalochlaena lunulata*

CONSERVATION STATUS

EX EW CR EN VU NT **LC**

Extinct Threatened Least Concern

There are four species of blue-ringed octopuses, all with stunning iridescent rings. Despite their small size, blue-ringed octopuses are one of the most venomous marine animals in the world. Their vibrant blue rings appear as a warning when threatened. They are often found in shallow rocky pools or sandy areas near coral reefs, where they hunt crabs and shrimp. They are known to have killed at least three people, but incidents are rare, and these gentle animals won't attack unless provoked.

First Described

1832 by Quoy & Gaimard
(*Hapalochlaena lunulata*)

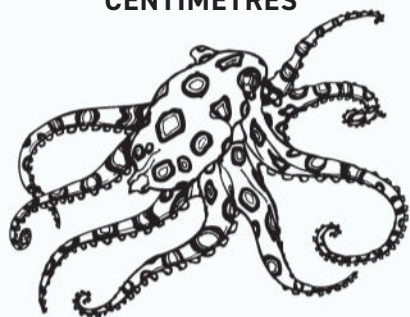
Depth Range

1-5
METRES

Size

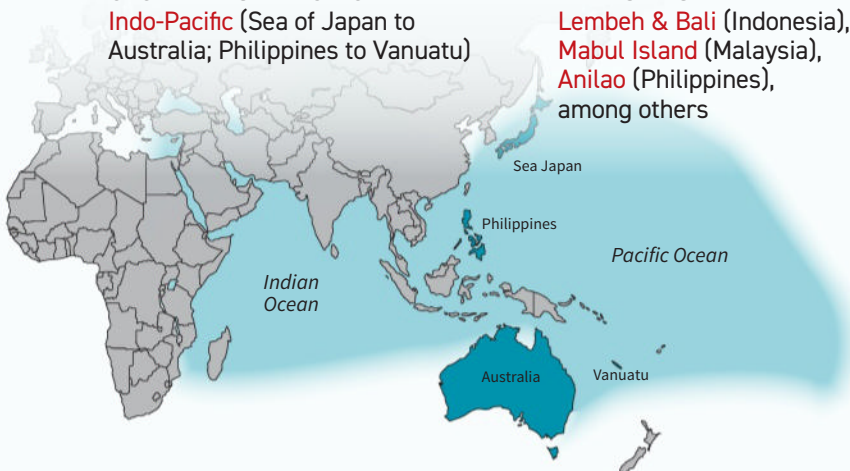
Varies for
different species

5-22
CENTIMETRES



GLOBAL DISTRIBUTION

Indo-Pacific (Sea of Japan to Australia; Philippines to Vanuatu)



DIVE SITES

Lembeh & Bali (Indonesia),
Mabul Island (Malaysia),
Anilao (Philippines),
among others



The blue-ringed octopus is a bucket list photo subject in the Lembeh Strait, Indonesia

Shutterstock



If provoked, blue rings quickly change colour, becoming bright yellow with each of the 50-60 rings flashing bright iridescent blue

Shutterstock

BIGFIN REEF SQUID

(*Sepioteuthis lessoniana*)

These squid are easily recognised by their large fins that extend along their entire mantle length. They are often seen hovering near coral reefs or darting through open water at night. They feed on small fish and crustaceans and are known for their schooling behaviour during mating seasons. Mating displays can be very elaborate, including the deposit of eggs in nooks and crannies in the reef.

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Myopsida
Family : Loliginidae
Genus : *Sepioteuthis*
Species : *S. lessoniana*

CONSERVATION STATUS

Data Deficient

First Described

1831 by Férussac

Depth Range

2-100
METRES

Size

Mantle length

UP TO
40 CENTIMETRES

GLOBAL DISTRIBUTION

Indo-Pacific coral reefs and shallow waters



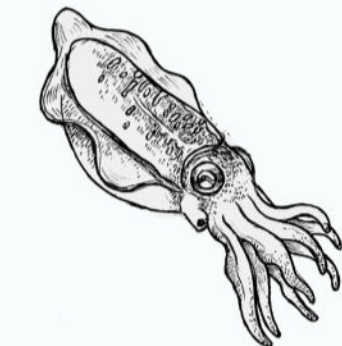
DIVE SITES

Numerous, including
Raja Ampat (Indonesia),
Similan Islands (Thailand),
Apo Reef (Philippines),
Mergui Archipelago (Myanmar)

Pacific Ocean

Indian Ocean

Area of Distribution





At night, bigfin reef squid are often attracted to divers' lights

Shutterstock



Prawns and other crustaceans, and fish are the bigfin squid's main prey

Shutterstock

TWO-TONED PYGMY SQUID

(*Idiosepius pygmaeus*)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Idiosepiida
Family : Idiosepiidae
Genus : *Idiosepius*
Species : *I. pygmaeus*

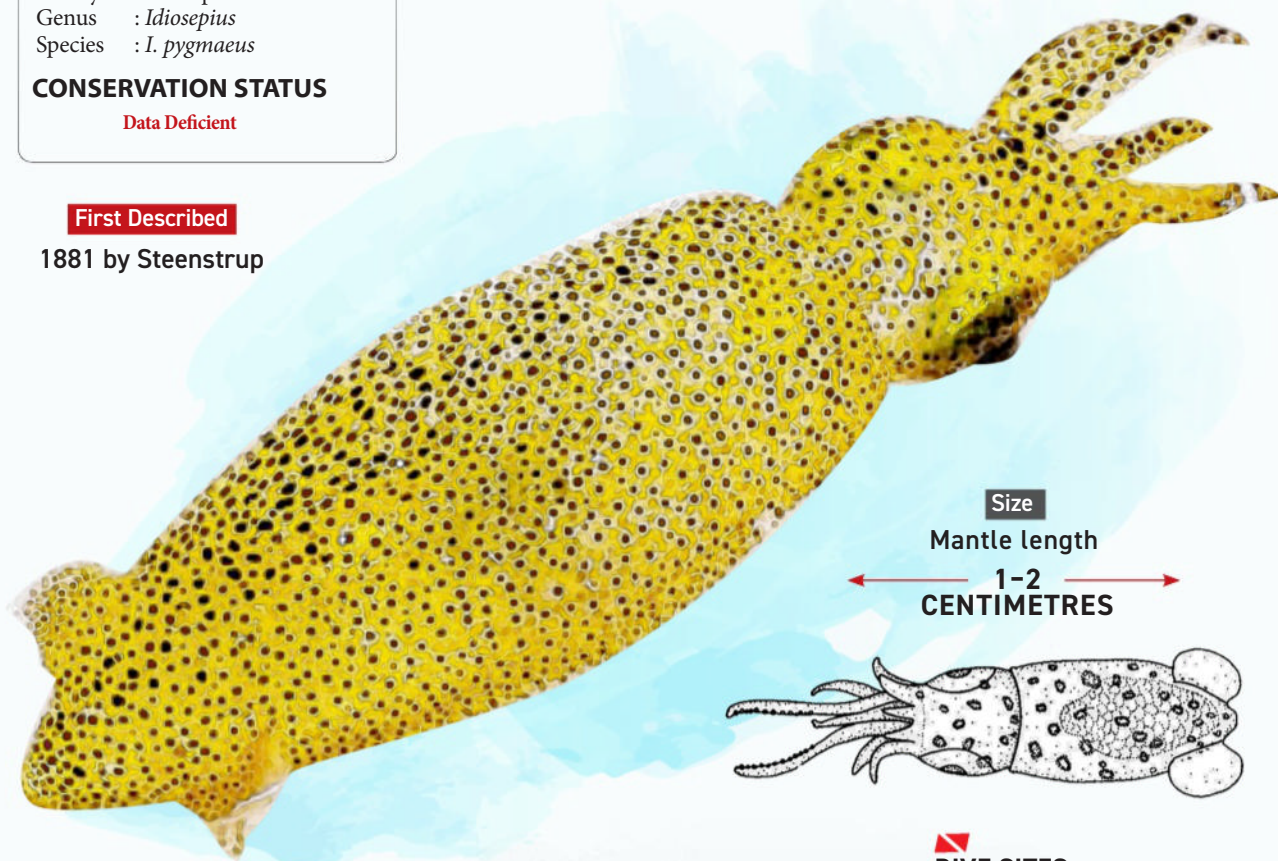
CONSERVATION STATUS

Data Deficient

One of the smallest cephalopods in the world, this squid attaches itself to seagrass using a specialised adhesive organ on its mantle. It feeds on tiny crustaceans and plankton and is often spotted in shallow seagrass meadows during calm conditions. Not easy to find this one!

First Described

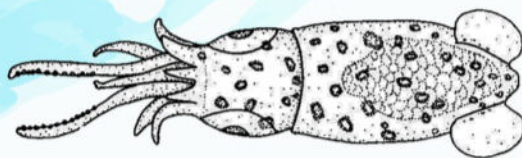
1881 by Steenstrup



Size

Mantle length

1-2
CENTIMETRES



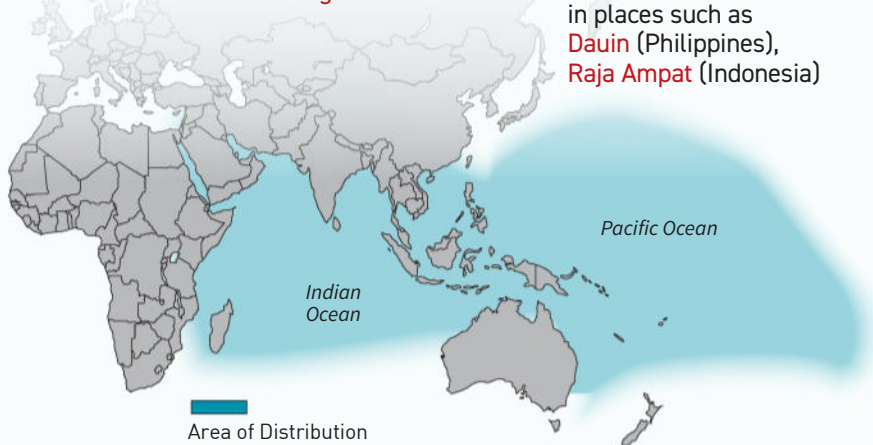
Depth Range

<10
METRES



GLOBAL DISTRIBUTION

Indo-Pacific West seagrass beds



DIVE SITES

Shallow seagrass areas in places such as
Dauin (Philippines),
Raja Ampat (Indonesia)



A two-toned pygmy squid enjoys a small snack

Shutterstock



No bigger than two centimetres in length, this tiny species of bobbail squid isn't easy to spot

Shutterstock

EAST ASIAN COMMON OCTOPUS

(*Octopus sinensis*)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Octopoda
Family : Octopodidae
Genus : *Octopus*
Species : *O. sinensis*

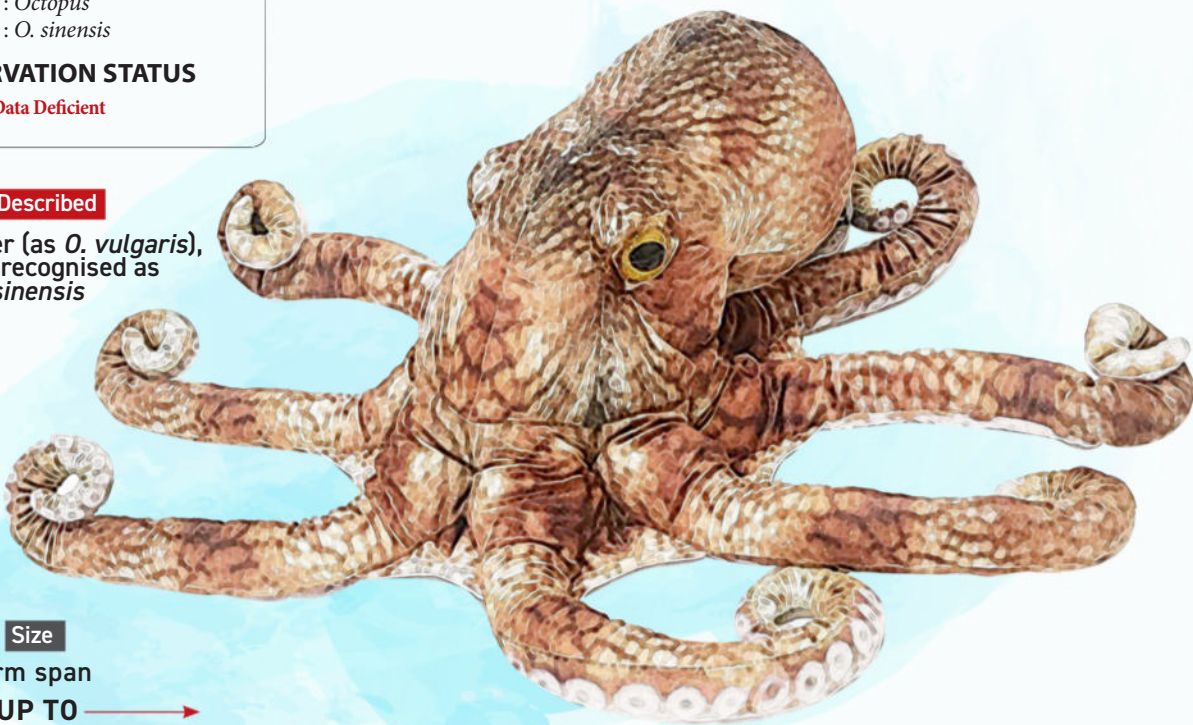
CONSERVATION STATUS

Data Deficient

Closely related to *O. vulgaris*, this species inhabits coastal waters with sandy or muddy bottoms where it preys on crustaceans and molluscs. It is less commonly encountered than other octopuses but can be spotted in certain parts of Southeast Asia during night dives.

First Described

1797 by Cuvier (as *O. vulgaris*),
2017 first recognised as
O. sinensis



Size

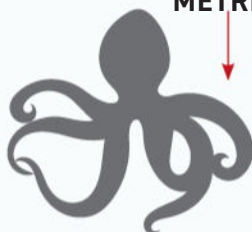
Arm span

UP TO
80 CENTIMETRES



Depth Range

<50
METRES

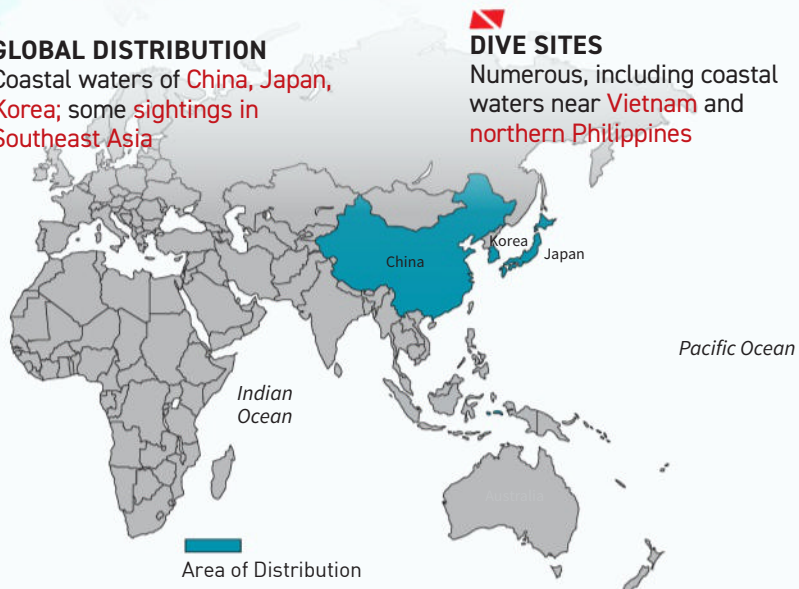


GLOBAL DISTRIBUTION

Coastal waters of China, Japan, Korea; some sightings in Southeast Asia

DIVE SITES

Numerous, including coastal waters near Vietnam and northern Philippines

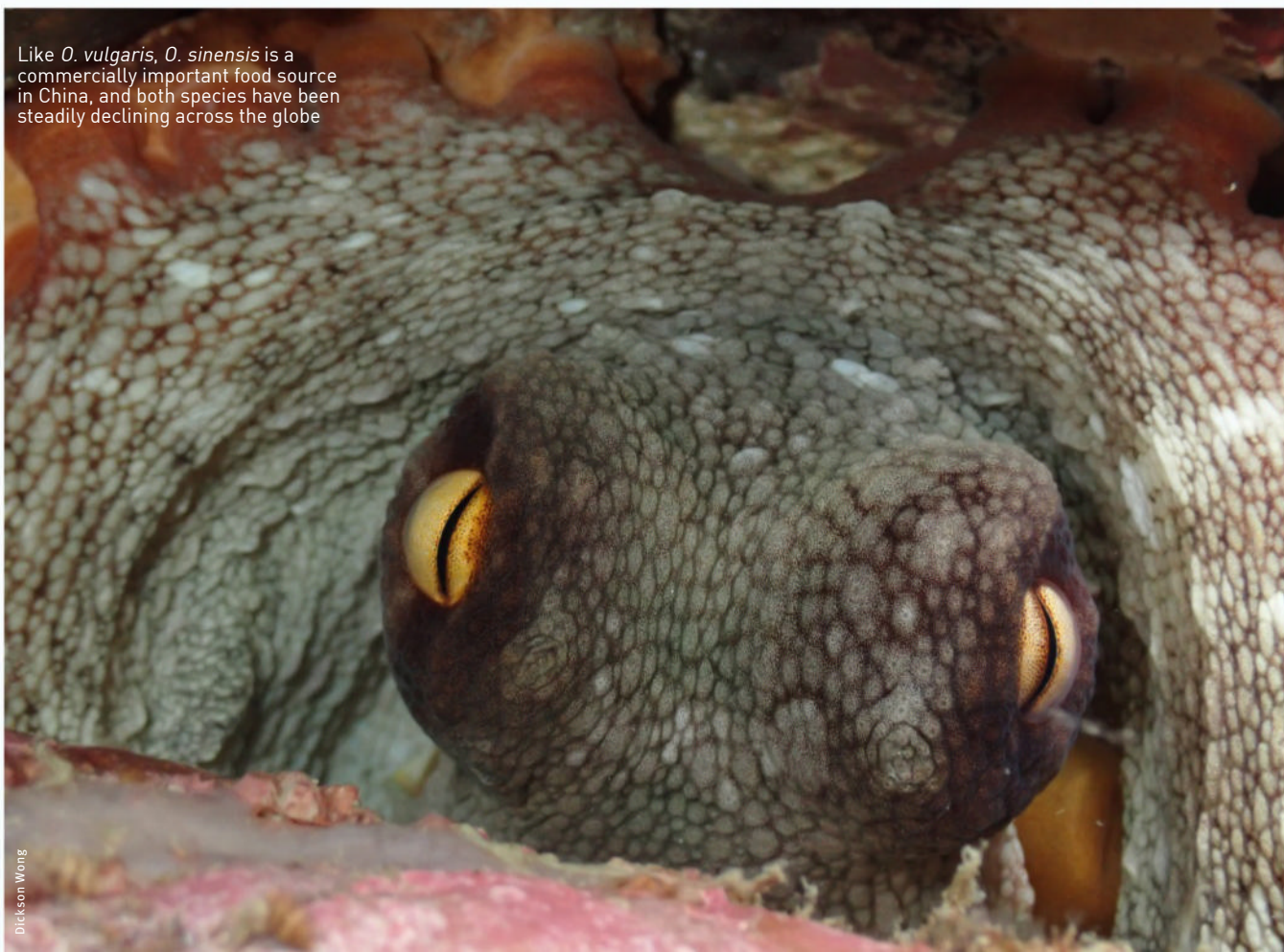


East Asian
Common Octopus



Ryan Yue Wah Chan

Like *O. vulgaris*, *O. sinensis* is a commercially important food source in China, and both species have been steadily declining across the globe



Dickson Wong

CHAMBERED NAUTILUS

(*Nautilus pompilius*)

SCIENTIFIC CLASSIFICATION

Kingdom : Animalia
Phylum : Mollusca
Class : Cephalopoda
Order : Nautilida
Family : Nautilidae
Genus : *Nautilus*
Species : *N. pompilius*

CONSERVATION STATUS

EX EW CR **EN** VU NT LC
Extinct Threatened Least Concern

First Described

1758 by Linnaeus

Depth Range

100-700 METRES

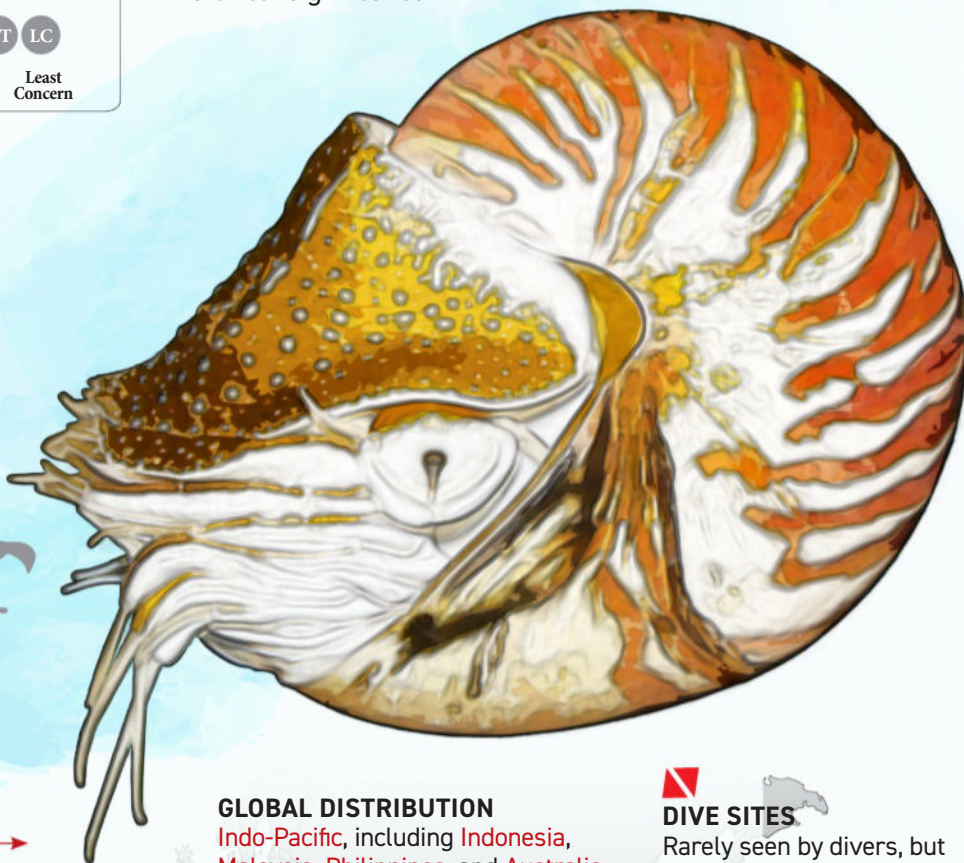
occasionally rising to shallower waters at night

Size

Shell diameter

UP TO 25.4 CENTIMETRES

The legendary chambered nautilus is an ancient cephalopod with an unmistakable spiral shell. Closely related to the first 500-million-year-old cephalopods, nautilus are native to the Indo-Pacific region, including countries like Indonesia, Malaysia, and the Philippines. Nautilus are deep-water creatures, typically found at depths of 100-700 metres, but they rise to shallower waters at night to feed on carrion and small crustaceans. Unfortunately, their shells are highly prized, leading to overexploitation and conservation concerns. Divers rarely encounter them, but sightings are considered a highlight due to their rarity and historical significance.

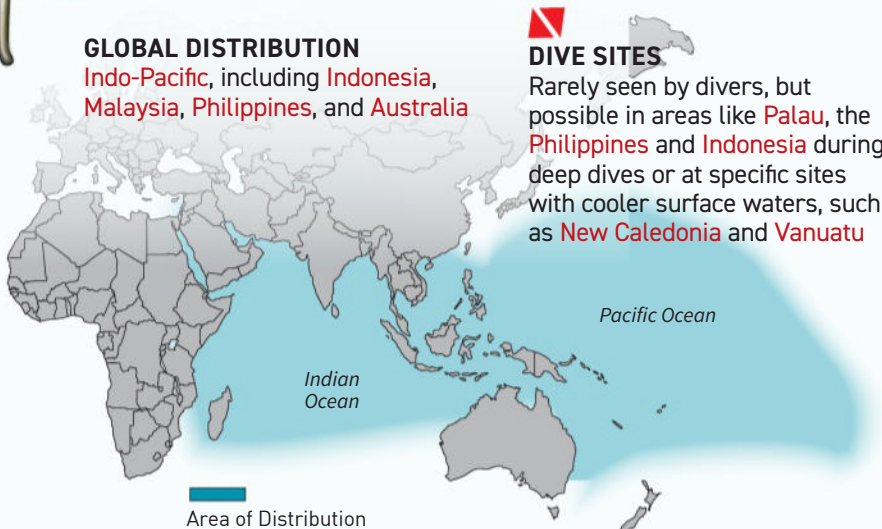


GLOBAL DISTRIBUTION

Indo-Pacific, including Indonesia, Malaysia, Philippines, and Australia

DIVE SITES

Rarely seen by divers, but possible in areas like Palau, the Philippines and Indonesia during deep dives or at specific sites with cooler surface waters, such as New Caledonia and Vanuatu





By controlling the density and volume of the liquid within its shell chambers, the nautilus can dive or ascend at will

Shutterstock



All nautilus species are threatened due to overfishing for their shell, which is used for jewellery and as ornaments

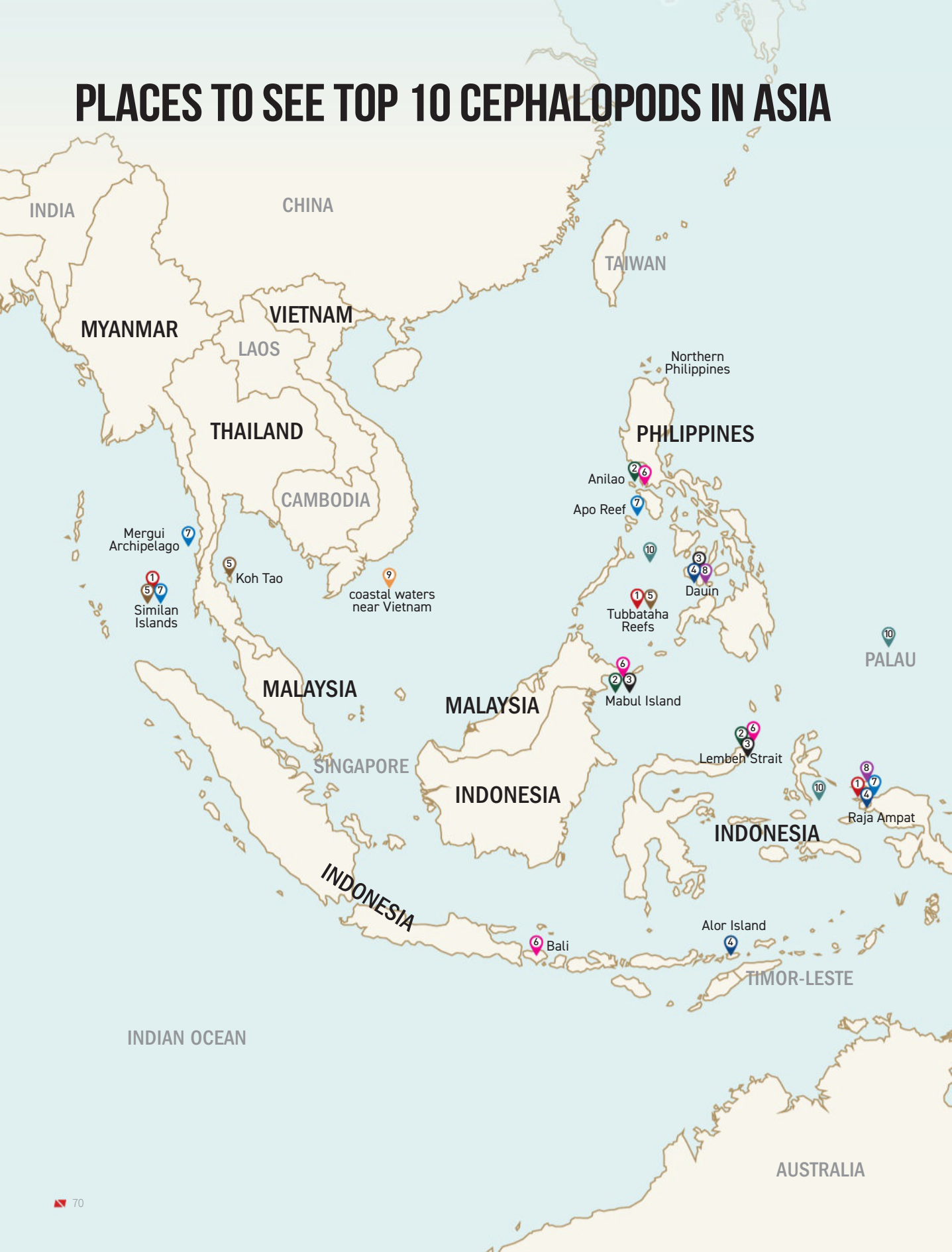
Shutterstock

PLACES TO SEE TOP 10 CEPHALOPODS IN ASIA

A map of Southeast Asia and Oceania highlighting 10 locations for seeing cephalopods. The locations are marked with numbered pins (1-10) and labeled. The map includes labels for countries: INDIA, CHINA, MYANMAR, VIETNAM, LAOS, THAILAND, CAMBODIA, MALAYSIA, SINGAPORE, INDONESIA, PHILIPPINES, TAIWAN, NORTHERN PHILIPPINES, PALAU, TIMOR-LESTE, AUSTRALIA, and INDIAN OCEAN. The locations are: 1. Mergui Archipelago (Myanmar), 2. Anilao (Philippines), 3. Apo Reef (Philippines), 4. Dauin (Philippines), 5. Tubbataha Reefs (Philippines), 6. Mabul Island (Malaysia), 7. Lembeh Strait (Indonesia), 8. Raja Ampat (Indonesia), 9. coastal waters near Vietnam, 10. Bali (Indonesia).

INDIA CHINA MYANMAR VIETNAM LAOS THAILAND CAMBODIA MALAYSIA SINGAPORE INDONESIA PHILIPPINES TAIWAN NORTHERN PHILIPPINES PALAU TIMOR-LESTE AUSTRALIA INDIAN OCEAN

1 Mergui Archipelago 2 Anilao 3 Apo Reef 4 Dauin 5 Tubbataha Reefs 6 Mabul Island 7 Lembeh Strait 8 Raja Ampat 9 coastal waters near Vietnam 10 Bali



1

BROADCLUB CUTTLEFISH
(*ASCAROSEPION LATIMANUS*)

Raja Ampat (Indonesia)
Similan Islands (Thailand)
Tubbataha Reefs (Philippines)

2

FLAMBOYANT CUTTLEFISH
(*ASCAROSEPION PFEFFERI*)

Lembeh Strait (Indonesia)
Mabul Island (Malaysia)
Anilao (Philippines)

3

MIMIC OCTOPUS
(*THAUMOCTOPUS MIMICUS*)

Lembeh Strait (Indonesia)
Mabul Island (Malaysia)
Dauin (Philippines)

4

WONDERPUS OCTOPUS
(*WONDERPUS PHOTOGENICUS*)

Lembeh Strait (Indonesia)
Alor Island (Indonesia)
Dauin (Philippines)

7

BIGFIN REEF SQUID
(*SEPIOTEUTHIS LESSONIANA*)

Raja Ampat (Indonesia)
Similan Islands (Thailand)
Apo Reef (Philippines)
Mergui Archipelago (Myanmar)

8

TWO-TONED PYGMY SQUID
(*IDIOSEPIUS PYGMAEUS*)

Dauin (Philippines)
Raja Ampat (Indonesia)

MARIANA ISLANDS

5

BREEF OCTOPUS
(*OCTOPUS CYANEA*)

Similan Islands (Thailand)
Tubbataha Reefs (Philippines)
Koh Tao (Thailand)

9

EAST ASIAN COMMON OCTOPUS
(*OCTOPUS SINENSIS*)

Coastal waters near Vietnam
Northern Philippines

NORTH PACIFIC OCEAN

6

BLUE-RINGED OCTOPUS
(*HAPALOCYANUS SPP.*)

Lembeh & Bali (Indonesia)
Mabul Island (Malaysia)
Anilao (Philippines)

10

CHAMBERED NAUTILUS
(*NAUTILUS POMPILIUS*)

Philippines
Indonesia
Palau
Vanuatu

PAPUA NEW GUINEA

SOLOMON ISLANDS

SOUTH PACIFIC OCEAN

VANUATU

SNAPSHOTS

By Renee Capozzola, Seacam Ambassador

NAUTILUS RIDER Anilao, Philippines

At first glance, many people will ask: *What exactly am I looking at?!* Resembling a sea monster wearing a Smurf hat, this 2- to 3-centimetre creature is an argonaut, or female paper nautilus. The paper nautilus is not a true nautilus but a pelagic octopus. The structure on its head is actually a paper-thin egg case secreted by the female used to house her eggs and control her buoyancy. By scooping a bubble of air into her shell at the surface, the female can then trap that air at depth and maintain neutral buoyancy.

This unusual octopus lives its whole life in the open ocean, often floating near the surface at night. This picture was shot off Anilao, Philippines on a blackwater dive, a night dive that takes place over deep water. Divers will search for a lighted downline for mostly small, planktonic larval organisms that rise up from deeper waters.

Argonauts are often found attached to other organisms such as a jellyfish, as here, or to other objects like a piece of seaweed or a leaf. The paper nautilus is believed to utilise the jellyfish for transportation but also for food. The nautilus extracts nutrients from the jellyfish by piercing holes into the bell of the jellyfish with its beak. The paper nautilus is one of the most interesting and fascinating animals I have encountered and had the privilege to photograph.





SUNBURST SHIPWRECK Brisbane, Australia

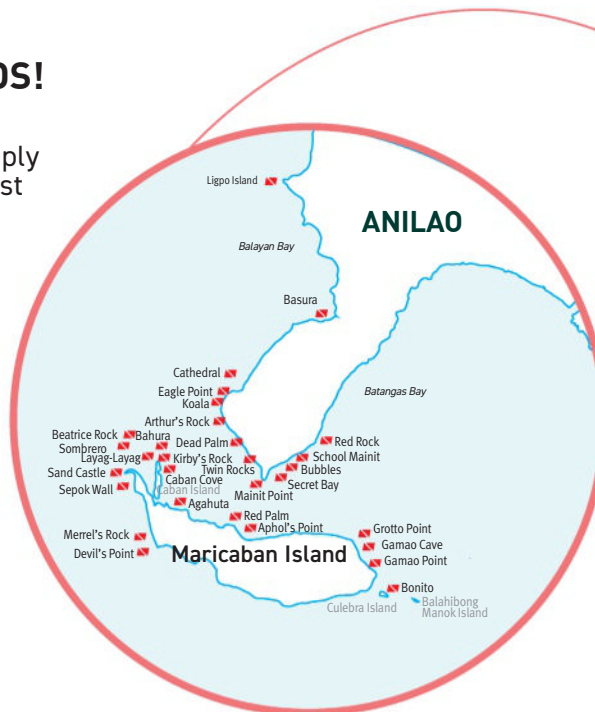
This split image was shot just before the sun went down behind this shipwreck off Brisbane, Australia. I had spent all afternoon taking images in the shallow waters with the sun overhead and thought it would make a nice picture later in the day when the sun was going to drop behind the wreck. On this particular evening, I was fortunate to have calm water and a clear sky. By using a very small aperture and flash, I was able to capture both the sunburst forming as the sun dropped in the background and the fish in the foreground.



CRAZY FOR CEPHALOPODS!

Anilao, Philippines

Blackwater diving in Anilao is simply amazing and was off the charts last month for cephalopods! There are so many beautiful and unusual creatures to see here including this larval wunderpus.







COCONUT OCTOPUS

Anilao, Philippines

A large coconut octopus poses for the camera, outside of its shell in the black sand. This was shot with a 60mm macro lens and snoot on a night dive under a jetty

SEA TURTLES

Maui, Hawaii

Let's celebrate the beauty of our oceans and diversity of our world's sea turtles! These green sea turtles are older than the dinosaurs and thrive throughout the islands of Hawaii due to strong protections. It's crucial that we strive to conserve our oceans so that they will be healthy for future generations **AD**



Renee Grinnell Capozzola
USA

SEACAM Ambassador
ADEX Speaker

Renee Capozzola is a conservation-oriented underwater photographer and photojournalist from Southern California. She has received over 60 international accolades, including "Underwater Photographer of the Year" in UPY 2021 and the "Female Fifty Fathoms Award" from Blancpain, in the Ocean Photographer of the Year 2021. Her work has appeared worldwide in leading publications, including *National Geographic* in print, and has been featured by multiple news outlets including CNN, USA Today, and the BBC. Renee is an Ocean Geographic Master Photographer, a fellow of The Explorers Club, and a SEACAM Ambassador. When she is not diving, Renee enjoys public speaking events, judging international photo competitions, teaching photo workshops, writing articles for various magazines such as *Asian Diver* and *Alert Diver*, and educating others about the importance of preserving marine ecosystems.



GEAR BAG

Canon EOS 5D Mark IV
Canon EOS 7D Mark II
SEACAM housing and ports
Canon EF lenses
SEACAM Seaflash strobes

BACKYARD PARADISE

Tioman Island, Malaysia

Beneath the crystalline waters off Peninsular Malaysia's east coast lies Tioman Island. Beyond its reputation for coral gardens and comfortable diving, Tioman harbours a remarkable variety of cephalopods, making it a must-visit destination for enthusiasts keen to observe these intelligent invertebrates in their natural habitat.

The waters around Tioman are home to several verified cephalopod species, including the graceful reef squid (*Sepioteuthis lessoniana*), which can be spotted performing mesmerising colour changes and light displays, particularly during mating season. Divers regularly encounter the common octopus (*Octopus cyanea*) and day octopus (*Octopus vulgaris*), masters of camouflage often found hunting amongst coral heads. Perhaps most impressive are the cuttlefish species – the broadclub cuttlefish (*Ascarosepion latimanus*) with its distinctive W-shaped pupils and powerful hunting techniques, and the pharaoh cuttlefish (*Ascarosepion pharaonis*), known for its impressive size and mating rituals. With water temperatures ranging from 26°C to 30°C year-round and visibility often exceeding 20 metres, the conditions for observing these remarkable creatures couldn't be more perfect. **AD**



DIVE EXPERIENCE

All levels



BEST TIME TO DIVE

Mid-March to May,
September to Mid-October



WATER TEMPERATURE

26°C to 30°C



VISIBILITY

15 to 30 metres

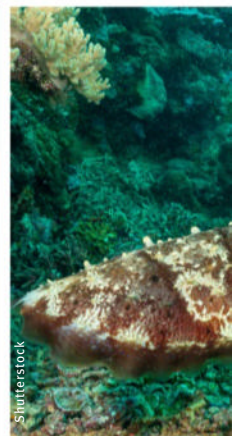


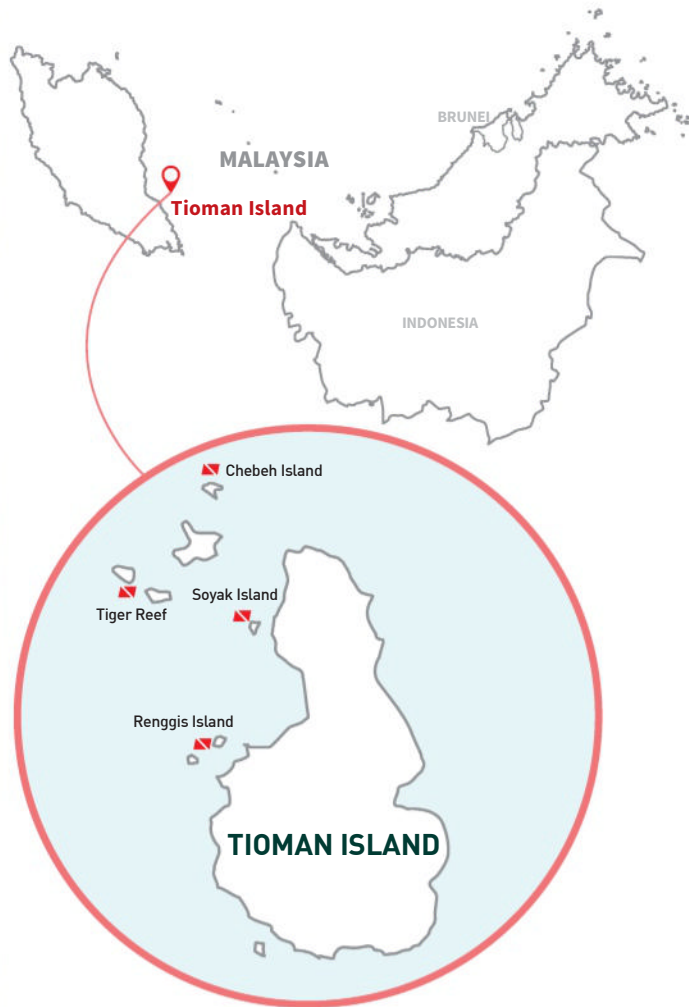
DEPTH

Up to 70 metres



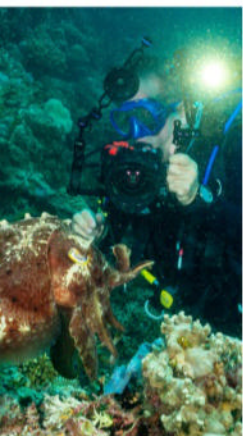
Tioman's crystal-clear waters are perfect for critter spotting





▼ CLOCKWISE FROM TOP LEFT

Reef squid (*Sepioteuthis lessoniana*); day octopus (*Octopus vulgaris*); pharaoh cuttlefish (*Sepia pharaonis*); broadclub cuttlefish (*Ascarosepion latimanus*); common octopus (*Octopus cyanea*)



GETTING THERE



The best way to get to Tioman is via ferry from the port towns of Mersing or Tanjung Gemok. From Kuala Lumpur, the bus journey to Mersing will take you around six hours, with the ferry to Tioman taking around 1.5 to 2 hours.

Tioman is located just over 30 kilometres off the east coast of Malaysia, in the state of Pahang, close to the private island of Batu Batu, and is encompassed by the Mersing Marine Park. The volcanic island was used as a navigation point and source of fresh water for fisherman, while its port was commonly visited by trading ships.

Today, it's a popular resort island and a well-regarded scuba diving spot known for its reefs and wrecks, and the corals at many of the dive sites have managed to remain in good condition. With abundant marine life to encounter, Tioman is a haven for divers of all levels and its clear waters provide excellent opportunities for underwater photographers.

KIM BRIERS

Photographer Spotlight



My passion for underwater photography started about 20 years ago, when I was working with marine biologists on the tropical islands of Cayos Cochinos in Honduras. My job was to help photograph the coral reef and its marine life for research purposes. I got really addicted to taking photos and every evening I would identify the different species and develop the images. Since then, I've become fascinated by macro photography as well. At that time I

was still shooting with a small Canon PowerShot compact camera, but now I shoot with a Canon EOS R5 in a Marelux housing.



GEAR BAG

Canon EOS R5,
Canon RF 100mm f/2.8 Macro,
Marelux MX-R5 housing,
Marelux +10 and +15 diopters,
Marelux Soft Pro snoot,
2x Minigear MS-03 lights with snoots and colour filters,
Bigblue RGB White II light, Fotocore ST-01 light with
colour wheel, OrcaTorch D710V light



Mototi Octopus

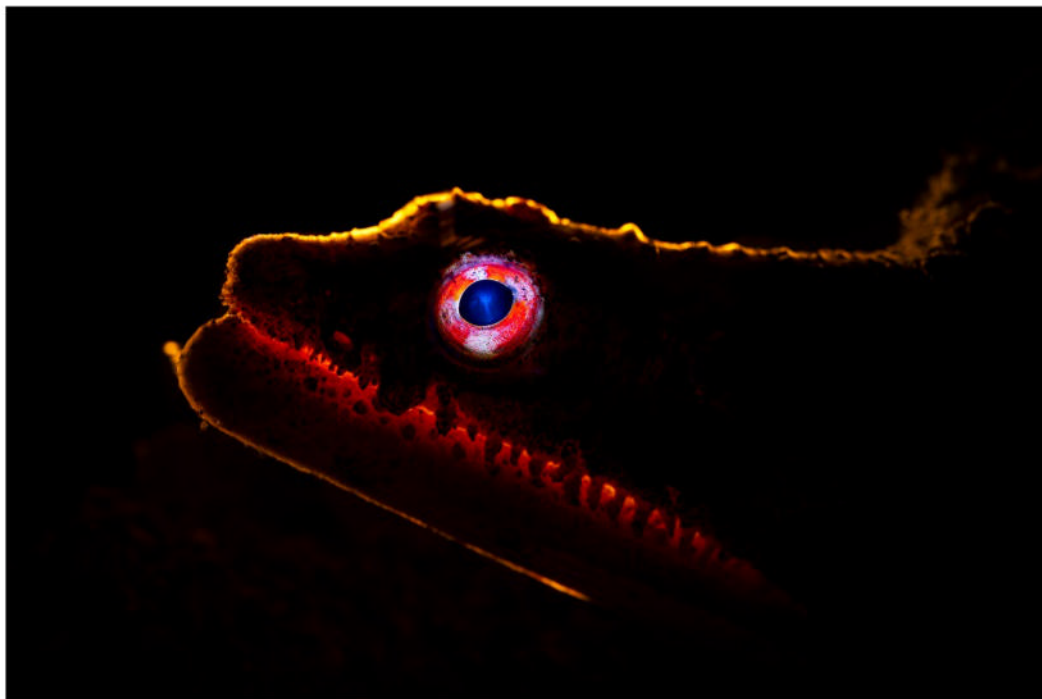
When shooting the *Amphioctopus mototi* at the popular macro dive site "Melasti" in Tulamben, Bali, we projected a Minigear MS-03 torch with a colour filter behind one of our slates. Using a magenta colour torch filter with the yellow slate (CMYK colour theory) created a beautiful shade of deep red, perfectly imitating a low setting sun. Then we snooted the octopus to create a black background. It took some time to get the right composition between "sun" and octopus.



The Gloomy Nudibranch

I like to experiment with light underwater using different kinds of torches and snoots. This rare nudibranch was very tiny, only a few millimetres in size, so it was a bit challenging to get it in focus using strong diopters and a snoot to make the subject stand out from its background.





Crocodile Snake Eel

Perfect snooting of the eye only can be challenging, especially when an animal is moving. Try to find the right distance between backlight source and subject. Also, the positioning of your backlight source(s) is important not to "blind" your camera by shining straight into the lens with a strong torch. I experimented with different colours for a "Tim Burton" feeling in this image.

Harlequin Shrimp

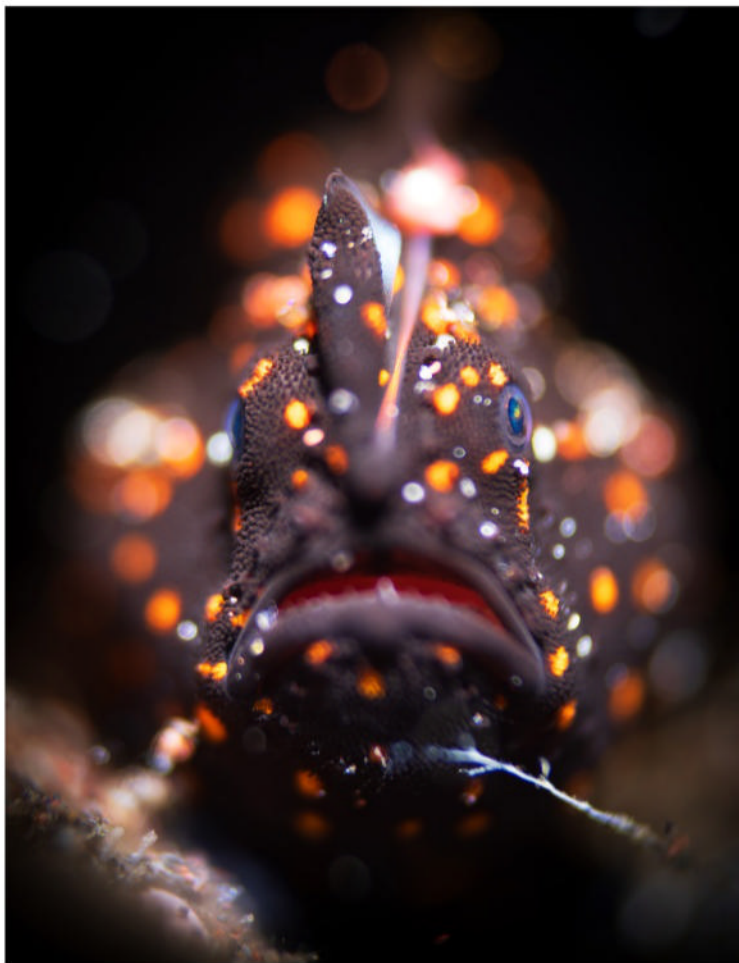
In this award-winning image, I used a hair comb as a background because of the interesting shape of its teeth. I used two different types of colour torches: the Minigear MS-03 with a pink colour filter on the left, and the Bigblue RGB White II with its blue light on the right. All these aspects together create an interesting image that has more to tell than just being an ID shot. Creativity is the key to an original and meaningful image that tells a story. Think outside the box!





Pancake Batfish

When ocean conditions allow, natural reflections can be captured right beneath the surface. This reflection is of a very rare creature to spot: *Halieutichthys aculeatus* or the larval pancake batfish. This intriguing creature was swimming around in every direction in the shallows during a blackwater dive in Anilao, Philippines.



Painted Frogfish

Besides using artificial backgrounds to create bokeh, it is also perfectly possible to achieve a bokeh effect by harnessing the spots found along the bodies of many animals. You can even do it with wide-angle shooting of a blue-spotted ribbontail ray, for example, or all kinds of spotted nudibranchs. To achieve the bokeh, shoot at f/5.6 all the way down to f/2.8. The above image shows the *Antennarius pictus* or ainted frogfish shot at f/2.8. **AD**

RUNNING OUT OF AIR

DAN Shares Lessons in Gas Management

DIVER NO. 1

A 37-year-old male diver with approximately 30 lifetime dives was doing his first night dive. It was also his first cold-water and first drysuit dive. He was healthy and not taking any medications. The diver descended to 30 metres, breathing air and using a dive computer. He had some difficulty beginning his descent due to his failure to adjust his weight to compensate for the increased buoyancy of the drysuit. After some time at the bottom he checked his air gauges and found he had less than 20 bar remaining. He signalled to his buddy he was terminating the dive and began to ascend. Because of inexperience, the ascent was not fully controlled, and the diver reported feeling "close to panic."

After surfacing, he waited for his buddy, and they swam back to shore. Fortunately, the diver did not experience any symptoms. Planning sufficient gas reserves to account for unexpected problems helps ensure divers make it back to the surface with gas to spare. Deeper or more challenging dives require greater reserves.

DIVER NO. 2

A 52-year-old male with hundreds of lifetime dives, including several technical dives, was participating in a series of wreck dives with three buddies. He was not known to have any medical conditions or to be taking any medications; he was reportedly in good general health. The first dive was an uneventful wreck dive to 34 metres for 28 minutes. The second dive was planned as a shallower dive, and the diver's three buddies descended ahead of him. His body was later found floating on the surface 800 metres from the initial descent area. One witness reported that the snorkel was in the diver's mouth when his body was recovered. His weight belt was not in place, and his tank was empty.

Circumstances indicated he made a buoyant emergency ascent. His computer recorded a nine-minute dive to nine metres. Apparently, each of the four divers used a single tank (per diver) to make both dives. The autopsy findings were consistent with drowning.

DIVER NO. 3

The diver was a 24-year-old female with approximately 100 lifetime dives. She reported a history of regular exercise and good general health, and she denied taking any medications. Her dives were warm-water ocean dives hunting lobster. The first dive was along a reef structure at a maximum depth of 22 metres, and some time passed before she located her prey. Trying to capture one lobster required a short chase and raised her respiratory rate. The diver checked her gauge only when she became aware of increased breathing resistance. It displayed "0". She admitted to panicking and swimming rapidly toward the surface. She failed to jettison her weights or inflate her BCD, which she would have to have done orally because of her empty cylinder. Other divers saw her struggling to keep her head above water and remove the regulator from her mouth.

They helped her return to the dive boat, where she had difficulty breathing and coughed up pink, frothy sputum. Crew members provided oxygen and returned to shore, where emergency medical service personnel were waiting. She was transported to the hospital and diagnosed with seawater aspiration. She developed pneumonia and was hospitalised for two weeks, after which she was discharged with no residual problems.

> When planning a dive, incorporate a breathing-gas limit in the plan



ANALYSIS

To many people who drive a car every day, running out of fuel may seem improbable, but it is a daily occurrence. Likewise, ineffective breathing-gas management while diving is a recurrent problem. During peak season, DAN's Medical Services Team speaks with at least two divers every week who have concerns about having made a "rapid ascent" after finding themselves low on or out of breathing gas. Although the incidence of fatal injuries is very low, a significant percentage of dive fatalities involve insufficient breathing gas as the trigger that led to other harmful events and, ultimately, the death of the diver. Drowning is the leading cause of death in these situations.

"During peak season, DAN's Medical Services Team speaks with at least two divers every week who have concerns about having made a 'rapid ascent' after finding themselves low on or out of breathing gas."

The reasons behind bad gas management are numerous and varied. The first diver in this case study introduced new environmental factors (a night dive in cold water) and new equipment (a drysuit), and he failed to make adjustments for any of it. As a result, poor buoyancy control, unfamiliar equipment and stressful dive conditions increased his air consumption and reduced the volume in his tank faster than usual. He had an adequate gas supply to make a safe ascent, but his inexperience left him unable to control his ascent rate.

The second diver started his second dive with a practically empty tank, which was either an oversight or a bad decision. He followed his training in making a buoyant emergency ascent, though he clearly ignored it in failing to ensure he had an adequate gas supply at the start of the dive.

The third diver was involved in vigorous and distracting activities. These increased her respirations and sped up the depletion of her gas supply, which she did not monitor carefully. She failed to follow her training by not releasing her weights to increase her buoyancy at the surface.

Exertion, stress, anxiety and environmental factors can all increase respiratory rate. Activities like lobster hunting or spearfishing may consume gas supplies five to 10 times faster than usual. Wearing too much or too little weight can cause divers to work harder, increasing gas consumption. Regardless of factors, however, divers should monitor gas supply frequently and consistently.

CONCLUSIONS

When planning a dive, incorporate a breathing-gas limit in the plan. For example, a buddy pair might agree to head back to the exit point when the first diver has used a third or half of his breathing gas (not counting the reserve to be left in the cylinder at the end of the dive). Maintaining buddy contact can make a life or death difference. Safe diving practices and sharpening skills such as buoyancy control reduce the risk of a breathing-gas emergency but do not eliminate it completely.

Proper responses to breathing-gas emergencies rely on experience and skill recall. Establishing and practising responses are essential; confidence in being able to use an alternate air source provided by a buddy can lead to a much better outcome. Through planning and practice, effective breathing-gas management can become second nature and reduce the likelihood of a diving emergency. 



DAN CASE STUDY SUMMARIES

DIVER NO. 1



Subject

37-year-old male, novice diver (30 lifetime dives).



Incident

First night dive, cold-water dive, and drysuit dive. Descended to 30m on air. Experienced difficulty controlling descent due to inadequate drysuit weighting. Ascertained less than 20 bar remaining upon gas check. Initiated ascent, reporting uncontrolled ascent and near-panic.



Outcome

Surfaced and returned to shore with buddy. No reported symptoms.



Analysis

Novel environmental and equipment factors impacts on gas consumption. Inadequate weighting and inexperience contributed to increased stress and uncontrolled ascent.

DIVER NO. 2



Subject

52-year-old male, experienced diver (hundreds of dives).



Incident

Wreck dives. First dive to 34m for 28 minutes. Second dive, planned as shallower with reportedly insufficient air in cylinder. Body recovered floating 800m from descent point. Dive computer recorded a nine-minute dive to 9m.



Outcome

Fatal drowning.



Analysis

This case indicates a critical failure to ensure adequate gas supply prior to a dive. The buoyant emergency ascent, while technically correct, was necessitated by a preventable error.

Proper responses to breathing-gas emergencies rely on experience and skill recall

DIVER NO. 3



Subject

24-year-old female, intermediate diver (100 lifetime dives).



Incident

Lobster hunting. First dive to 22m. Exertion during lobster capture led to increased respiratory rate. Gas gauge read '0' upon check. Panicked, rapid ascent without weight jettison or BCD inflation.



Outcome

Assisted return to dive boat. Presented with dyspnoea and pink, frothy sputum. Diagnosed with seawater aspiration and pneumonia. Hospitalised for two weeks.



Analysis

Incident demonstrates the impact of physical exertion and distraction on gas consumption. Failure to monitor gas levels and execute emergency procedures exacerbated the situation.

RECOMMENDATIONS

- 1 Implement a 'gas limit' within dive plans
- 2 Conduct thorough pre-dive equipment checks
- 3 Practise emergency procedures regularly
- 4 Educate divers on the impact of exertion and stress on gas consumption
- 5 Be very aware of the dangers of diving twice with the same tank without filling

world.dan.org

GEMS OF BORNEO

Derawan Islands

Text by Mark B Hatter

Our cruise director, Pep, was worried. Our departure from Lembeh Strait to the Derawan archipelago off the east coast of Borneo was timed to arrive just two days before the full moon. The moon's high illumination above the Sulawesi Sea would likely mean the *bagans* operated by local fishermen would not be manned. *Bagans* are offshore platforms with seine nets extending laterally in the water from either side of the structures, with bright lights that attract swarms of small fish and shrimp. The nets are raised when full and the night's catch is sorted for transport to shore the next day where it is sold in local markets. Within a day or two of a full moon, the fishermen abandon the offshore fishing platforms as the bright moonlight tends to outcompete the lights on the *bagan*. Pep's worry was palpable, as *bagans* are synonymous with whale sharks in this part of the world. No fishermen, no catch; no catch, no whale sharks. And whilst not a guarantee, a whale shark dive on Borneo's *bagans* is a signature dive on the *Raja Ampat Aggressor* (RAA) during its seasonal itinerary cruising the Derawan archipelago.

We were aboard the RAA's transition voyage, from Lembeh Strait to Derawan – the ship's home for the next six weeks. Now six days out of Lembeh Strait, only 16 hours separated us from the whale shark encounter to accomplish three planned dives. Any delay to visit the *bagans* beyond the next day was not an option according to Pep, and he was confident tomorrow was our last and only shot to dive with whale sharks on this voyage. So, we had a decision to make.

Having arrived at the halfway point of an already amazing 12-day journey, we'd checked off a number of bucket-list diving objectives for the photographers and sightseers. From blue-ringed and coconut octopuses to scores of nudibranchs, locally endemic banggai cardinalfish and frogfish, Lembeh Strait delivered. Around the northeastern corner of Sulawesi, we dived a signature reef blanketed with stunning orange-hued soft corals at



Sangka Beach. Further west, halfway to Borneo, we dived with dozens of green sea turtles at Bunaken Island. With so much great diving already logged, Pep's proposition to risk three dives in hopes of finding a whale shark was an easy decision to make... Unanimously, we chose the *bagans*!

The following morning around 10am, we reached the shallow shelf off coastal Borneo and began searching the widely spaced *bagans*. At 11:00, the dive bell sounded loudly; one of two advanced crew, racing ahead of the RAA in the dinghies, had found a *bagan* and two whale sharks feeding around the structure. Time to gear up!

We rolled off the dinghies to one of the best whale shark encounters I've experienced. As promised, two eight-metre-plus animals repeatedly swam in lazy arcs around our small group of divers, lining up under the *bagan* to feed at the hands of the fishermen, ladling sardines into the water. Pirouetting on enormous tails, holding vertically in the water column, the massive animals vacuumed the sardines in great gulps from the surface for the better part of 75 minutes. Sacrificing three reef dives for one epic whale shark encounter was absolutely the right call!



A whale shark
vacuums up sardines
at a *bagan*

“Since the Derawan islands are atolls, they offer dive sites with precipitous walls, reef passages to inner lagoons and strong moving water along exposed boundaries adjacent to prevailing currents.”

We then steamed four hours north to Sangalaki Island for another special event: the release of newly hatched green sea turtles from the island's ranger station refuge. To enable the highest survival rate, the refuge harvests turtle eggs immediately after a new nest is discovered on the island. The eggs are then relocated to a protective enclosure until they hatch. Hatchlings are held for a day in a small cement pond and released at dusk to further aid in their ability to avoid early predation, especially from seabirds.

In the warm afterglow of our amazing whale shark encounter, we now had the magical opportunity to assist the park rangers in collecting green turtle hatchlings as they swarmed up and out of their nest within the protective enclosure. These newest hatchlings were moved to the cement pond, and those already in the pond were collected for release on the beach. In an impromptu baby sea turtle race, the squirming hatchlings were set up in makeshift lanes where they immediately raced for freedom to the sea to the raucous cheers of our divers.

Of the 31 islands in the Derawan archipelago, centred two degrees north of the equator in the Sulawesi Sea, the RAA visits spectacular dive sites on four of them over the course of their seven-day charters. Located near the left leg of the Coral Triangle, the Derawan archipelago is exceptionally biodiverse, featuring 872 species of reef fishes, 507 species of coral, and invertebrates, including five giant clam species, two sea turtle species, and the land-based coconut crab.

Since the Derawan Islands are atolls, they offer dive sites with precipitous walls, reef passages to inner lagoons and strong moving water along exposed boundaries adjacent to prevailing currents. It becomes quickly apparent that the diving here resembles the diving in and around Waigeo and Gam in northern Raja Ampat. Large, old-growth table corals and dense thickets of

staghorn corals abound. And healthy corals translate to healthy fish populations.

On one precipitous wall dive at Barracuda Point off Kakaban Island, the ripping current required us to use reef hooks to hold position as briefed by Pep before the dive. I left my camera behind, and gladly so, as the current was so strong I would have been unable to shoot images. I was, however, able to work my way to within a few feet and hang for several minutes with the massive school of barracuda after which the site is named.

Another surprise the RAA has to offer is a swim in the largest jellyfish lake in the world on Kakaban Island. The mangrove-ringed lake is an enclosed saltwater lagoon supporting three species of landlocked, non-stinging jellyfish: moon jellies, golden jellies and upside-down jellies. It was a fun challenge to shoot the jellies in midwater and in the mangroves without the aid of swim fins (prohibited due to the fragility of the jellies), using only a snorkel and mask.

On the penultimate day, we dived early at Maratua Island channel, the seaward entrance to the island's lagoon, at the tail end of the incoming tide when visibility was optimum. With strong currents predicted by Pep, once again, I dived without my camera. It was another correct decision. Although we encountered massive schools of snapper and jackfish at the mouth of the pass, simply hooking in to witness the spectacle without worrying about f-stops, shutter speeds and backscatter was refreshing.

With 10 full days of diving under my belt, completely content with beginning my image processing, I opted out of the two dives on the final day at Derawan Island. It may have been a mistake, for those that made the dives reported that the reef was impossibly better than the perfection we had already witnessed over the last four days! I wouldn't challenge the call, as the Derawan Islands rightly seem to be the Raja Ampat of north-central Indonesia. **AD**

Dive Sites of the Derawan Islands

WHALE SHARK



DIVE SITE

Whale Shark Point



DEPTH

Surface to 15m



HIGHLIGHTS

Incredible encounters with whale sharks that feed on bait from local fishing platforms. Best chances when *bagans* are actively manned, typically avoiding the full moon period



The world's biggest fish enjoys a free meal



The jellyfish lake on Kakaban Island is the planet's biggest



KAKABAN ISLAND



DIVE SITE

Barracuda Point



DEPTH

Wall drops to 40m+



HIGHLIGHTS

Massive schools of barracuda, strong currents requiring reef hooks. The lee side features stunning stony coral thickets with chromis, anthias and butterflyfish



SPECIAL FEATURE

The world's largest jellyfish lake, with three species of non-stinging jellyfish in a mangrove-ringed saltwater lagoon. Fins prohibited to protect jellyfish



A A cuttlefish cruises the sandy bottom off Sangalaki Island

V> Stunning orange soft corals at Sangka Beach

MARATUA ISLAND



DIVE SITE

Maratua Channel



TIMING

Best at the tail end of incoming tide



HIGHLIGHTS

Strong currents deliver massive schools of snappers and jackfish at the seaward entrance to the lagoon



TECHNIQUE

Reef hooks recommended due to strong currents



SANGALAKI ISLAND



DIVE SITE

Manta Cleaning Station #2



HIGHLIGHTS

Home to green turtle nesting sites with the ranger station. Mantas frequent the cleaning stations, breeding cuttlefish and diverse reef life



CONSERVATION

The ranger station collects and protects turtle eggs, releasing hatchlings at dusk to increase survival rates



DERAWAN ISLAND



NOTES

Reportedly features some of the most pristine reefs in the 31-island Derawan group



MARINE LIFE

The archipelago supports 872 reef fish species, 507 coral species, five giant clam species, two sea turtle species, and the land-based coconut crab

The *Raja Ampat Aggressor* liveaboard hosts seasonal six-week Derawan Islands itineraries



ADEX OZTEK AUSTRALIA 2025

March 15–16, Sydney, International Convention and Exhibition Centre



ADEX OZTek Australia 2025 took place in Sydney, bringing together technical divers, recreational diving enthusiasts, marine conservationists, and ocean innovators for a two-day conference and exhibition, held at the International Convention Centre Sydney (ICC Sydney). This event combined the legacy of two of the dive industry's most respected brands – the OZTek Advanced Diving Conference and the Asia Dive Expo (ADEX) – celebrating ocean exploration and sustainability.

ADEX OZTek Australia 2025 featured an interesting mix of expert speakers, engaging panel discussions, and exhibitions showcasing cutting-edge diving technology, travel opportunities, and marine conservation initiatives. The OZTek Advanced Diving Conference, with over 25 years of history, highlighted technical diving innovations, featuring world-renowned experts in

deep diving, cave exploration, rebreather technology, and diving medicine. The ADEX Dive and Travel Show, making its Australian debut, brought valuable insights into underwater imaging, marine conservation, and dive tourism development. Additionally, the event hosted the ADEX OZTek Underwater Photography Competition and The OZTek Awards, recognising winning underwater images and honouring individuals for their contributions to the growth, development, and future of diving.

With speaker presentations across two specially constructed theatres and the Underwater360 stage, attendees had the opportunity to gain expert insights into diving and conservation. Partnering with the Ocean Lovers Festival, the event combined education, entertainment, and advocacy, strengthening connections and showcasing industry innovations.

ADEX OZTEK AUSTRALIA 2025

BY THE NUMBERS

DAY	March 15	March 16	Total
CONFERENCE	417		417
TRADE PASS HOLDERS	432	315	747
VISITORS	1,125	838	1,963

GRAND TOTAL VISITORS

3,127







ADEX OZTek Australia 2025 attracted a total of 3,127 attendees over two days. The success of ADEX OZTek's first event in Australia lays the groundwork for future events, supporting its mission to bring the global dive community together. **AD**

ADEX SINGAPORE 2026

Preparations are already underway for ADEX Ocean Festival Singapore 2026 from April 10 to 12. Get ready to have your expectations blown out of the water – It's going to be even grander and more inclusive than ever! Think a dive show couldn't possibly get more exciting? Think again!

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Singapore brand Umizaru produces a range of high-quality products for the discerning diver, and the Lite 30 buoyancy compensator is no exception. Achieve a more-streamlined position in the water effortlessly and have more fun diving. Features an aluminium backplate, single continuous harness, 30lbs internal bladder made from 420 denier nylon, and an outer shell using 1000 denier nylon. Available in a variety of stylish colours and designs.

www.divelab.sg

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For divers who admire the design and quality of the Hydros Pro but prefer a more minimalist BCD, Scubapro introduces the new Hydros Core. This super-streamlined BCD features a lightweight, low-profile design, lower lift capacity, no integrated weight system and no trim weight pockets. Its dual-compound backplate features a rigid core for stability and a soft, overmolded Monprene exterior for comfort. The Hydros Core epitomises Scubapro's 60-year tradition of dive equipment excellence, delivering a practical solution for minimalist divers looking for performance, simplicity and durability in their BCDs.

www.scubapro.com

7 SCUBAPRO NAVIGATOR LITE BCD

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The Navigator Lite, Scubapro's new lightweight, back inflation BCD is perfect for the recreational travel diver who prefers black flotation in a simple, yet durable form. Similar in weight to the current Litehawk BCD, the new Navigator Lite is built around an Airnet soft backpack, making it light, foldable, and travel-friendly. The Navigator Lite also offers a new feature that no other Scubapro BCD has – replaceable air cell covers that come in a choice of six colour options for colour-customising your dive gear. The Navigator Lite comes in two expandable sizes, 2XS-M and M-2XL, with a bit of overlapping to ensure the perfect fit. Available with either a BPI or AIR2.

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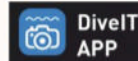
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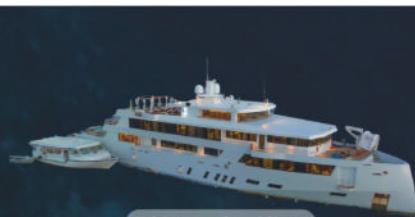
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911

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911 EMERGENCY CALL TO SAVE OUR SHARKS

The ocean is the heart of our planet, providing the air we breathe, the water we drink, and food for millions. Sharks, having existed for over 450 million years, play a crucial role in maintaining the health of our oceans. However, their survival is under threat due to unsustainable fishing practices, habitat destruction, and the demand for shark products.

The "911 Emergency Call to Save Our Sharks" campaign is a global initiative to raise awareness and drive action towards the conservation of sharks and rays. We aim to educate the public about the vital role these creatures play in our ecosystems and the urgent need to protect them.

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Make a personal commitment to protect sharks and rays. Pledge to boycott products containing shark fins, shark and ray meat, and squalene, a rich oil derived from shark liver used in cosmetics and other products. Stand with us and the global movement to save these magnificent creatures.

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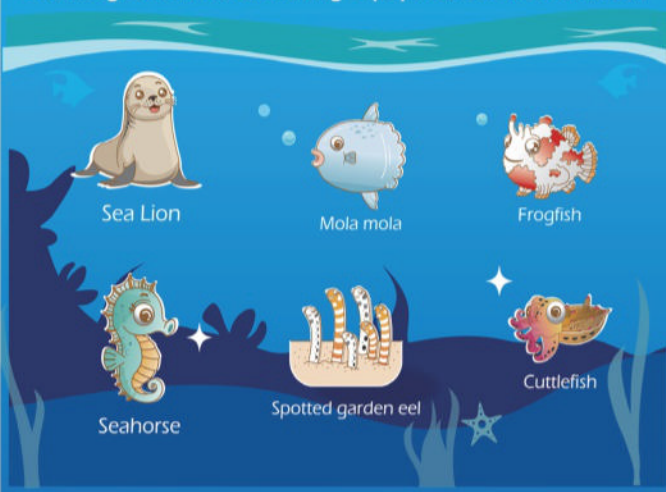
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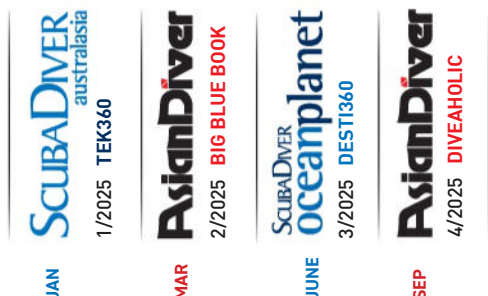
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PUBLISHER/EDITORIAL DIRECTOR

John THET thet@uw360.asia

EDITORIAL

CONTRIBUTING EDITOR

Ian BONGSO-SELDRUP ian@uw360.asia

EDITOR

Diego GARCIA diego@uw360.asia

DESIGN

ASSISTANT ART DIRECTOR

Tintwe JUSTIN tintin@asiangeo.com

ADVERTISING & MARKETING

REGIONAL BUSINESS MANAGERS

Desmond HO desmond@asiangeo.com

Elysee TAN elysee@asiangeo.com

PROJECT & EVENTS MANAGER

Elfrance PHANG elfrance@uw360.asia

EVENTS & MARKETING MANAGER

Kimberly NIU kimberly@asiangeo.com

MARKETING & EDITORIAL SUPPORT

Mihiri S KORALA marketing@uw360.asia

CIRCULATION & PRODUCTION

TRAFFIC/PRODUCTION/CIRCULATION

SENIOR MANAGER

Victor OW victor@uw360.asia

CONTACT INFORMATION

Editorial Submissions | editor@uw360.asia

Photo Submissions | photo@uw360.asia

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WRITE TO US

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Asian Geographic Magazines Pte Ltd

20 Bedok South Road,

Singapore 469277

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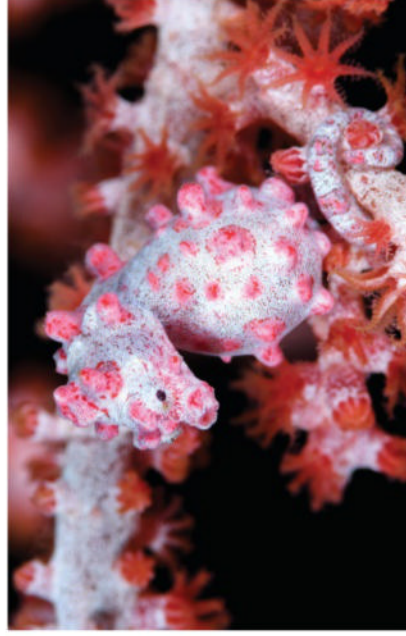
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